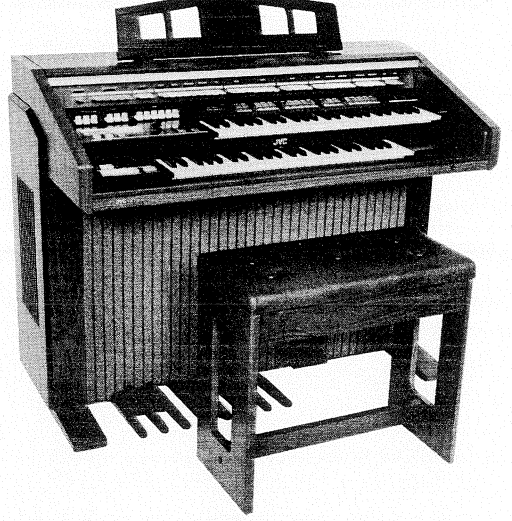
JVC

SERVICE MANUAL

ELECTRONIC ORGAN

MODEL M-880



CONTENTS

	Page
Safety Precautions	2
Features	2
Specifications	3
Presets Chart	4
Main Parts Location	6
Servicing Information	8
Microcomputer System	9
Adjustments	10
Parts List	11
Parts List by Kind	11
Cabinet Assembly	14
Parts List by P.W.B.	27
Packing	35
Block Diagrams	36
Circuit and Schematic Diagrams	37
GF Board	37
PR Board	39
Auto Rhythm Patterns	41
SF Board	43
CS Board	45
SY Board	47
MA Board	48
Other Boards	51
IC Block Diagram	53

No.6517
SEP.1983

SAFETY PRECAUTIONS

1. Make sure to use the specified parts for those marked with ⚠ symbol.
2. Return the clamp near the power supply to original position after servicing.
3. Disconnect the power before removing connectors of various units and circuit boards.
4. IMPORTANT: (Model M-880B only)
   The wires in the mains lead (power cord) are coloured in accordance with the following code:
   Green-and-Yellow : Earth
   Blue : Neutral
   Brown : Live

   The wire which is coloured Green-and Yellow must be connected to the treminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.
   The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured blue or black.
   The wire which is coloured Brown must be connected to the treminal which is marked with the letter L or coloured brown or red.

FEATURES

- Multi-functional microcomputer system with full-key scanning
- Compucorder memorizing chord base of 128 bars
- Stereo auto-rhythm with percussion cancelling function and digital tempo display
- Open/closed ultra chord
- Full-function synthesizer circuit for the solo synthesizer preset
- Various kinds of presets of the grand preset, ensemble, percussive preset

SPECIFICATIONS

Item	Description	
Keyboards	Upper 49 keys Lower 49 keys Pedal 13 keys	
Sound sources	3 Master sound sources 1. Upper Upper draw-bar, Solo synthesizer, Organ preset, Upper brass ensemble, Upper accordion, Upper string ensemble, Upper human chorus, Accomp. brass, Accomp. piano 2. Percussive Percussive preset 3. Lower Lower draw-bar, Lower brass ensemble, Lower accordion, Lower string ensemble, Lower human chorus, Arpegio piano, Bass	
Sound range	Upper	16′ C2 – C6 5-1/3′ G3 – G7 8′ C3 – C7 4′ C4 – C8 2-2/3′ G4 – G8 2′ C5 – C9
	Lower	8′ C2 – C6 4′ C3 – C7 2′ C4 – C8
	Pedal	16′ C1 – C2 8′ C2 – C3
	Pedal - Lower	16′ C1 – C4 8′ C2 – C5
Draw-Bar	Upper	16′, 5-1/3′, 8′, 4′, 2-2/3′, 2′
	Lower	8′, 4′, 2′
	Pedal	16′, 8′, Bass guitar 8′
Upper preset	Organ preset Organ, Jazz organ	
Upper & Lower presets	Percussive preset Piano, Electric piano, Harpsichord, Vibraphone, Guitar, Hawaiian guitar Brass ensemble Trombone, Trumpet, Wow brass Solo synthe. preset Trombone, Saxophone, Trumpet, Jazz flute, Clarinet, Violin, Whistle, Jazz guitar Accordion String ensemble I, II Human chorus I, II	
Grand presets	Big band Theater organ Synthe. orchestra	
Ultra chord	Open harmony Closed harmony	
Effect	Upper	Key click, Percussive 5-1/3′, 4′, 2-2/3′ Slow attack, Sustain
	Lower	Sustain
	Pedal	Sustain, Pedal to Lower
	Solo synthe. preset	Vibrato, Tone changer, Portamento, Bend
	Percussive preset	Sustain, Bend
Tremolo/ chorus	Upper draw-bar & Organ preset Lower draw-bar w/ Tremolo speed control	

Item	Description	
Stereo effect	Upper draw-bar Lower draw-bar Solo synthe. preset Percussive preset Symbal	
Total effect	Reverb	
Volume control	Total volume Percussive volume Organ preset Solo synthe. preset Percussive preset Brass ensemble Accordion Human chorus (Upper/Lower) String ensemble (Upper/Lower) Lower Rhythm	
Pitch control	Upper, Lower, Percussive Synthe.	
Foot switch	Bend/Tremolo/Chorus	
Auto-rhythm	Number of rhythm 20	Waltz, Jazz waltz, Polka, March, Rumba, Tango, Samba I, Samba II, Bossanova, Salsa, Mambo, Rock'n roll, Soft rock, Rock I, Rock II, Disco I, Disco II, Slow rock, Shuffle, Swing, Dixie
	Control	Intro.& Break, Auto-fill-in hand-clap Start & Stop (w/Foot L switch) Synchro. start Handclap ON/OFF Percussion cancel Latin percussion, Snear drum, Symbal & Hi-hat Tempo ♩ = 40–326 (32 steps) (Digital LED display)
Fascinating chord	Compu-accomp. Guitar, Piano, Brass Arpegio Piano Bass Bass variation (2 steps), Custom bass Control One-finger/Multi-finger switchable (w/ Chord memory switch)	
Compucorder	Record: 1 music, 128 bars (w/ Memory back-up)	
Power source	AC 240/220/110 V, 50/60 Hz	
Power consumption	330 W	
Output	Main 40 W R-channel 40 W L-channel 40 W	
Speaker	Main 30 cm R-channel 20 cm, 6 cm L-channel 20 cm x 2, 6 cm x 1	
Terminals	Input : MIC : Phono jack (–60 dB) AUX IN R, L : Pin jack (–10 dB) AUX IN R+L : Phono jack (–10 dB) EXP. IN R, L : Pin jack (–10 dB) Output: AUX OUT R, L: Pin jack Headphone : Phono jack	
Dimensions	119 cm(W) x 94 cm(H) x 64 cm(D)	
Weight	76 kg	

PRESETS CHART

Sound source & Effect	Preset	Organ preset		Percussive preset						Brass ensemble				Human chorus		String ensemble	
		Organ	Jazz organ	Piano	Electric piano	Harpsichord	Vibraphone	Guitar	Hawaiian guitar	Trombone	Trumpet	Wow brass	Accordion	I	II	I	II
Sound Source	16'	∿	∿	◿		⎍	∿	◿ ∿		U◿		U◿	U◿	U◿		U◿	
	8'	∿	∿		◿	◿			⎍	L◿	U◿	L◿	L◿	L◿	U◿	L◿	U◿
	5 ⅓'	∿	∿												L◿		L◿
	4'	∿			◿		∿				L◿						
	2 ⅔'	∿															
	2'	∿					∿										
Envelope	Decay			L	L	L	H	H	H								
	Slow attack												○	○	○	○	○
	Sustain															○	○
VCF	Decay									SLOW	FAST	SLOW					
	f c									LOW	HIGH	M					
	Q									M	M	HIGH					
Effect	Repeat						○										
	V C F							○									
	Vibrato							○	○								
	Key click		○														
	Percussive 5 ⅓'		○														
	Percussive 2 ⅔'		○														
	Stereo									○	○	○	○ FAST				
	Ensemble									○	○	○		○	○	○	○

U : Upper L : Lower

SOLO SYNTHE. PRESETS

		JAZZ GUITAR	WHISTLE	VIOLIN	CLARINET	JAZZ FLUTE	TRAMPET	SAX	TROMBONE
SOUND SOURCE	∧ 4'		D43						
	∧ 8'					D42			
	⊿ 8'			D44			D45		
	⊿ 16'								D46
	⊓ 16'				D47				
	⎍ 16'	D48						D49	
ENVELOPE	ATT. FAST						D61		
	SUS. LEVEL		R308 330K	R309 330K	R311 220K	R310 470K	R312 470K	R313 470K	R314 330K
	J. GUITAR	D57							
	VCF (small)	D58	D62	D63	D65	D64			
	〃 fc	R315 330K	R316 390K	R317 150K	R319 330K	R318 470K	R320 470K	R321 330K	R322 2.2M
EFFECT	BEND		D35						
	VIB MED	D36			D38	D37	D39		
	VIB FAST		D40	D41					
	VIB LEV.(s)	D75		D76	D77		D78	D59	D79
	PERC 4'∼					D80			
	NOISE					D85		D86	
	VCF Q (s)			D87					
	BRASSES	D81					D82	D83	D84
	SAX							D74	
	Other than SAX	D67	D68	D69	D71	D70	D72		D73

GRAND PRESETS

		BIG BAND	THEATER ORGAN	SYNTHE. ORCHESTRA
SOUND SOURCE	UPPER	Brass ensemble Trombone Trumpet Solo synthe. preset Trombone	Organ preset Organ	Percussive preset Guitar, Harpsichord Brass ensemble Trombone Solo synthe. preset Violin String ensemble I II
	LOWER	Human chorus I II Draw-bar 8', 4'	Brass ensemble Trombone Human chorus II Draw-bar 8', 4', 2'	Brass ensemble Trombone Human chorus I Draw-bar 8'
TREMOLO		X	○	X
STEREO		Synthe., Percussive, Symbal, Draw-bar	X	Draw-bar, Synthe., Symbal

MAIN PARTS LOCATION

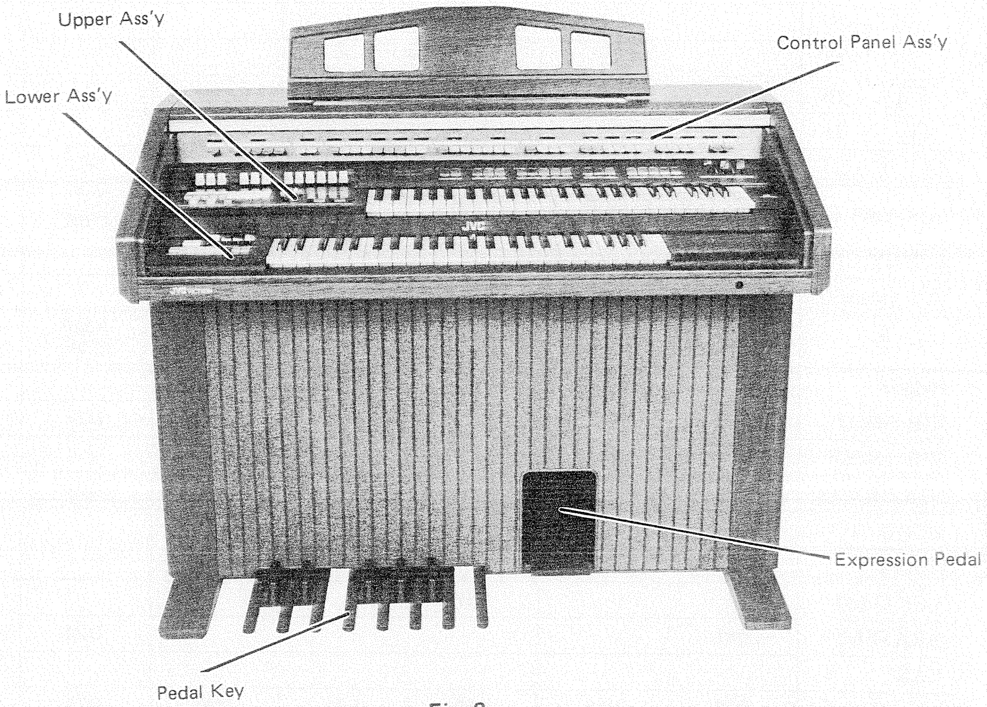

Upper Ass'y
Control Panel Ass'y
Lower Ass'y
Expression Pedal
Pedal Key

Fig. 3

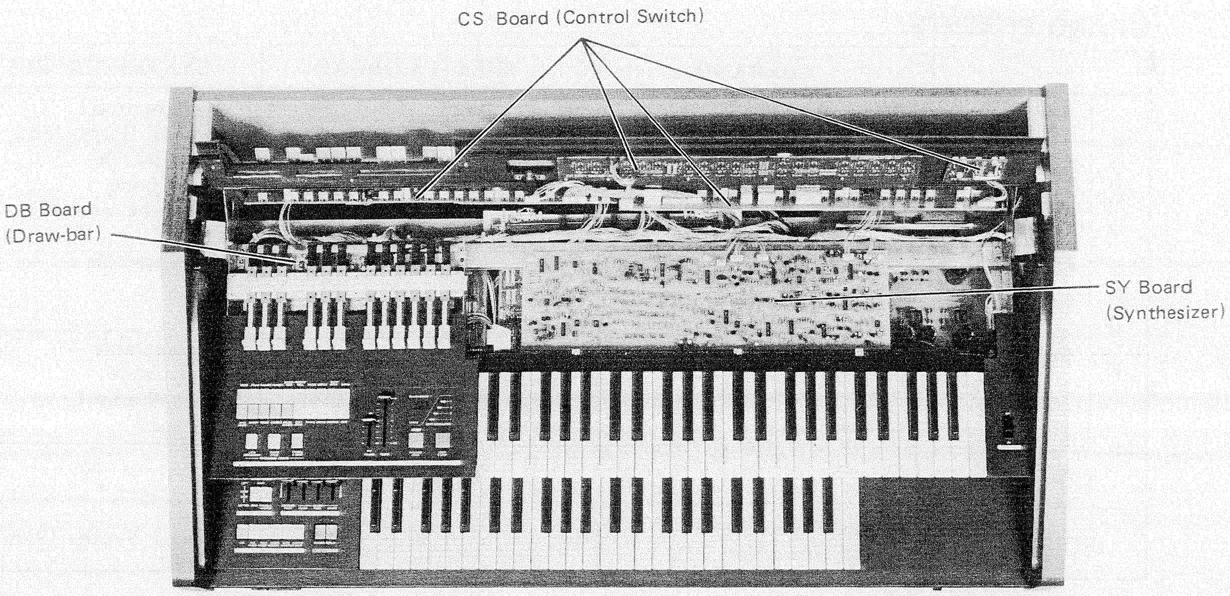

CS Board (Control Switch)
DB Board
(Draw-bar)
SY Board
(Synthesizer)

Fig. 4

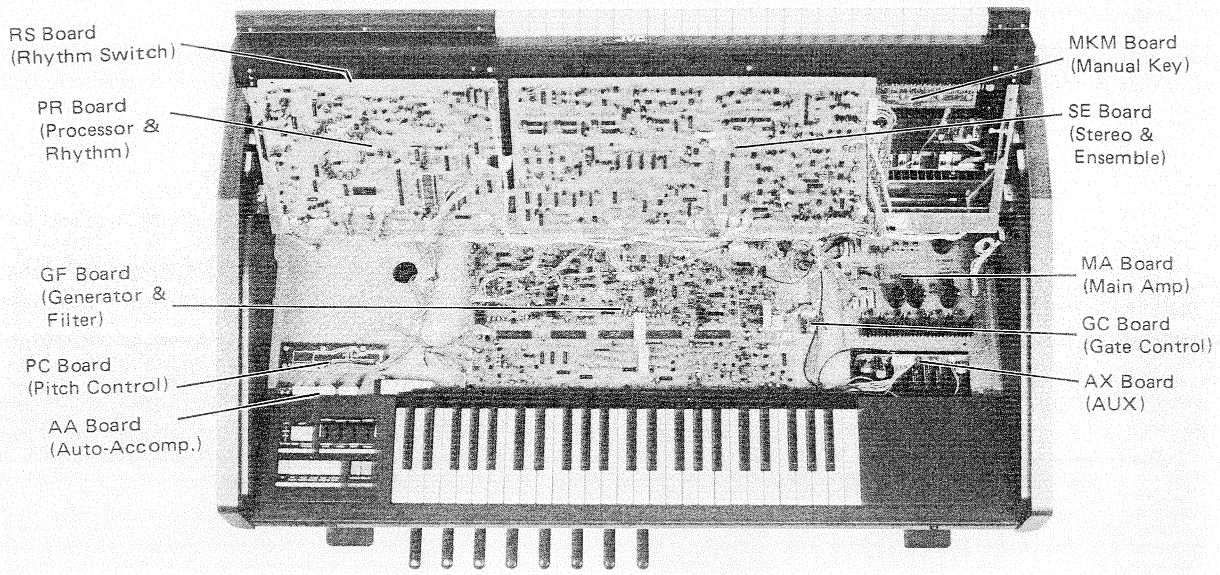

RS Board
(Rhythm Switch)
PR Board
(Processor & Rhythm)
GF Board
(Generator & Filter)
PC Board
(Pitch Control)
AA Board
(Auto-Accomp.)
MKM Board
(Manual Key)
SE Board
(Stereo & Ensemble)
MA Board
(Main Amp)
GC Board
(Gate Control)
AX Board
(AUX)

Fig. 5

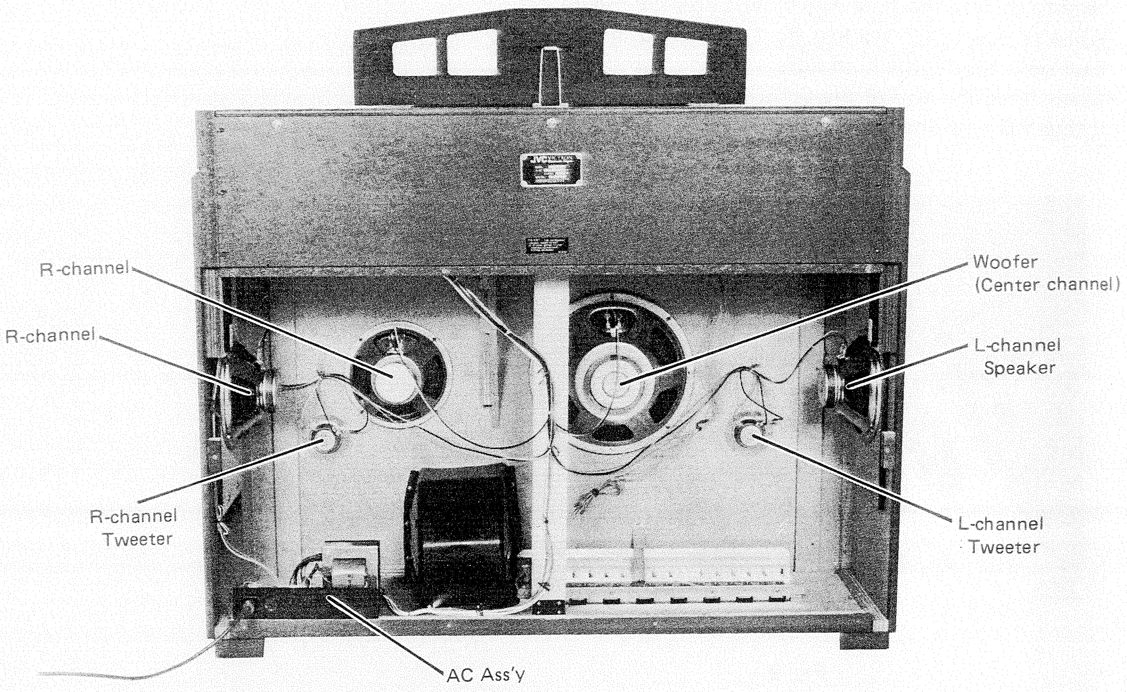

R-channel
R-channel
R-channel
Tweeter
Woofer
(Center channel)
L-channel
Speaker
L-channel
Tweeter
AC Ass'y

Fig. 6

SERVICING INFORMATION

■ Disassembly

The control panel assembly can be turned upwards after removing the top panel, slide lid and two blue screws.

The upper assembly can be disassembled by removing the two screws after the control panel assembly being turned upwards (see the figure below).

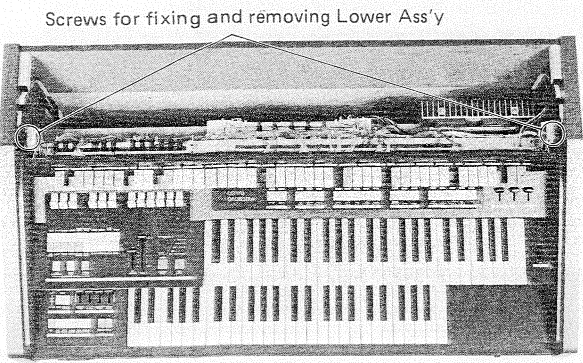

Screws for fixing and removing Lower Ass'y

Fig. 7

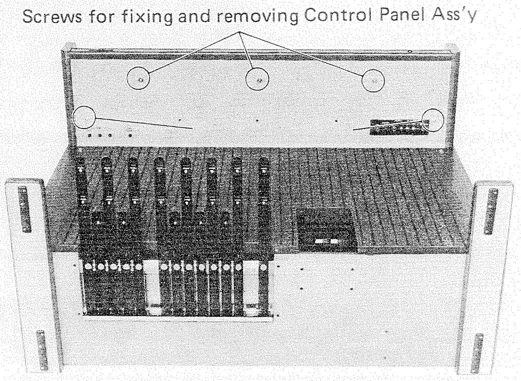

Screws for fixing and removing Control Panel Ass'y

Fig. 8

When removing key of the upper or lower keyboard, proceed to do it in the following order. Shown in Figure 9.
When removing a black key, do it after removing two white keys next to it at the both sides.
When removing key of the upper key board, proceed to do it together with the key panel.

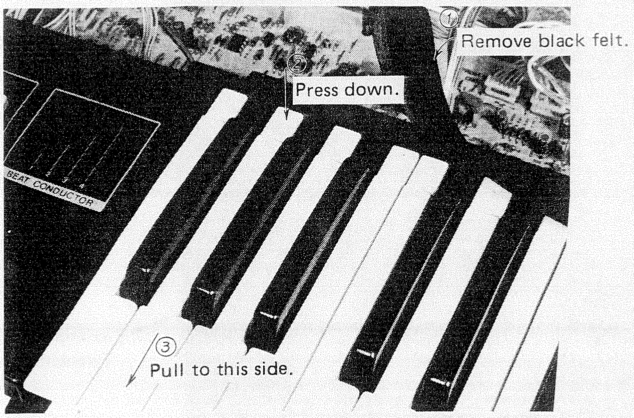

① Remove black felt.
② Press down.
BEAT CONDUCTOR
③ Pull to this side.

Fig. 9

MICROCOMPUTER SYSTEM

Functions Controlled by Microcomputers

- Keying of draw-bars and presets
- Ultra chord
- Compucorder
- Effect controls
- Fascinating chords
- Auto-rhythm pulse
- LED illumination
- Auto-rhythm tempo
- Synthesizer interval signal output

Rhythm Tempo

In conventional models rhythm is controlled by tempo oscillator's interruption against CPU. However, any tempo oscillator is not equipped in this model, and tempo is controlled by digital treatment of CPU's counter, thanks to a digital volume control adopted for the tempo volume. Accordingly, tempo speed is determined by the microcomputer in the range of 32 steps as shown below.

← SLOW Tempo FAST Tempo →

40, 48, 56, 64, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 126
132, 138, 144, 150, 158, 166, 176, 186, 206, 226, 246, 266, 286, 326

Tempo speed is digitally displayed in triple figures by 7-segment LED's.

System Block Diagram

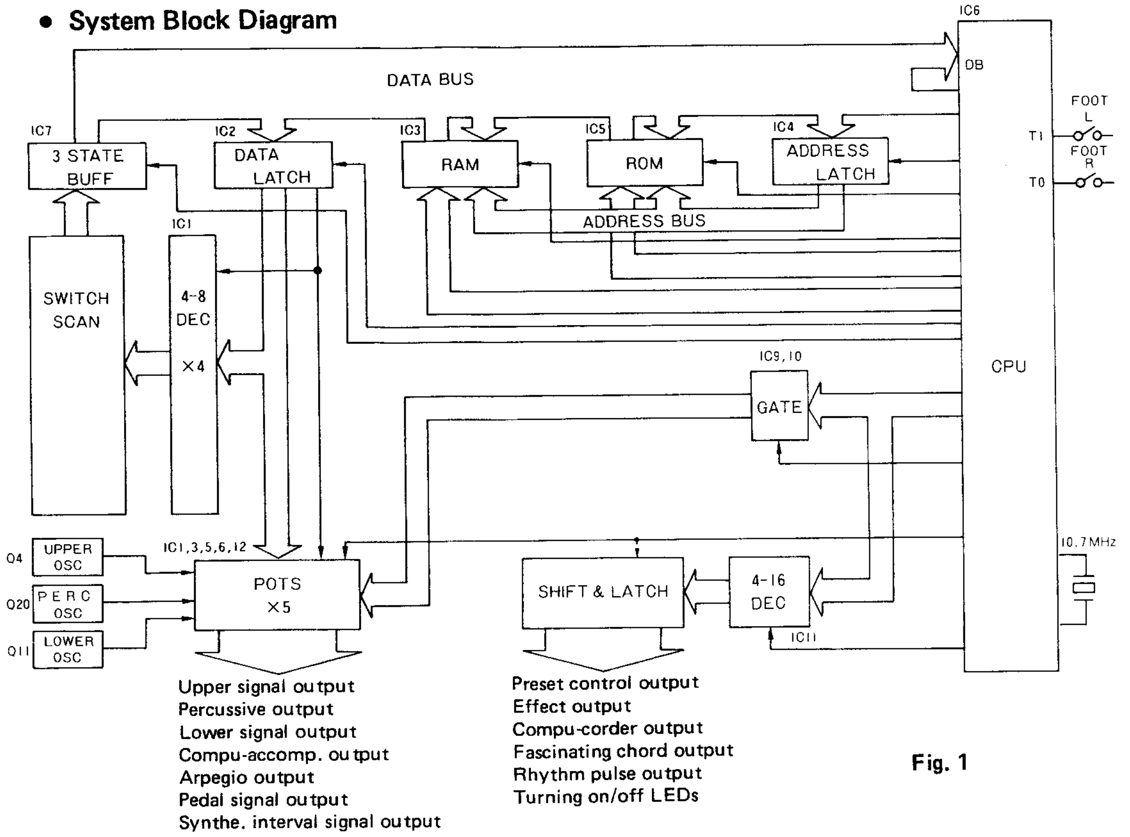

IC6
DB
DATA BUS
IC7
3 STATE BUFF
IC2
DATA LATCH
IC3
RAM
IC5
ROM
IC4
ADDRESS LATCH
ADDRESS BUS
FOOT L
T1
FOOT R
T0
IC1
SWITCH SCAN
4-8 DEC ×4
CPU
IC9, 10
GATE
10.7MHz
Q4
UPPER OSC
Q20
PERC OSC
Q11
LOWER OSC
IC1,3,5,6,12
POTS ×5
SHIFT & LATCH
4-16 DEC
IC11
Upper signal output
Percussive output
Lower signal output
Compu-accomp. output
Arpegio output
Pedal signal output
Synthe. interval signal output
Preset control output
Effect output
Compu-corder output
Fascinating chord output
Rhythm pulse output
Turning on/off LEDs

Fig. 1

Switch Scanning Block Diagram

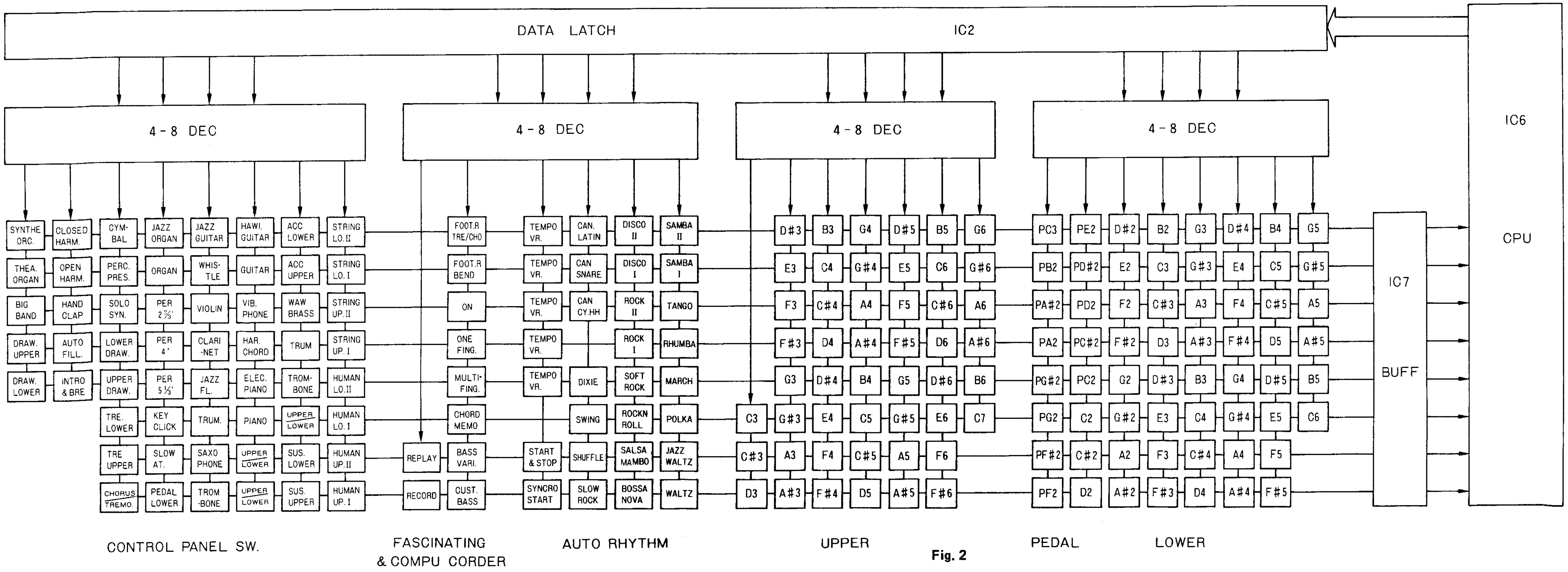
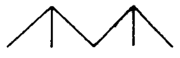
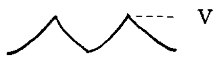
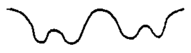

DATA LATCH
IC2
IC6
4-8 DEC
4-8 DEC
4-8 DEC
4-8 DEC
SYNTHE ORC.
CLOSED HARM.
CYM-BAL
JAZZ ORGAN
JAZZ GUITAR
HAWI. GUITAR
ACC LOWER
STRING LO.II
THEA. ORGAN
OPEN HARM.
PERC. PRES.
ORGAN
WHIS-TLE
GUITAR
ACC UPPER
STRING LO.I
BIG BAND
HAND CLAP
SOLO SYN.
PER 2⅔'
VIOLIN
VIB. PHONE
WAW BRASS
STRING UP.II
DRAW. UPPER
AUTO FILL.
LOWER DRAW.
PER 4'
CLARI-NET
HAR. CHORD
TRUM
STRING UP.I
DRAW. LOWER
INTRO & BRE
UPPER DRAW.
PER 5⅓'
JAZZ FL.
ELEC. PIANO
TROM-BONE
HUMAN LO.II
TRE. LOWER
KEY CLICK
TRUM.
PIANO
UPPER/LOWER
HUMAN LO.I
TRE UPPER
SLOW AT.
SAXO PHONE
UPPER/LOWER
SUS. LOWER
HUMAN UP.II
CHORUS/TREMO.
PEDAL LOWER
TROM-BONE
UPPER/LOWER
SUS. UPPER
HUMAN UP.I
FOOT.R TRE/CHO
FOOT.R BEND
ON
ONE FING.
MULTI-FING.
CHORD MEMO
REPLAY
BASS VARI.
RECORD
CUST. BASS
TEMPO VR.
CAN. LATIN
DISCO II
SAMBA II
TEMPO VR.
CAN SNARE
DISCO I
SAMBA I
TEMPO VR.
CAN CY.HH
ROCK II
TANGO
TEMPO VR.
ROCK I
RHUMBA
TEMPO VR.
DIXIE
SOFT ROCK
MARCH
SWING
ROCKN ROLL
POLKA
START & STOP
SHUFFLE
SALSA MAMBO
JAZZ WALTZ
SYNCRO START
SLOW ROCK
BOSSA NOVA
WALTZ
D♯3
B3
G4
D♯5
B5
G6
E3
C4
G♯4
E5
C6
G♯6
F3
C♯4
A4
F5
C♯6
A6
F♯3
D4
A♯4
F♯5
D6
A♯6
G3
D♯4
B4
G5
D♯6
B6
C3
G♯3
E4
C5
G♯5
E6
C7
C♯3
A3
F4
C♯5
A5
F6
D3
A♯3
F♯4
D5
A♯5
F♯6
PC3
PE2
D♯2
B2
G3
D♯4
B4
G5
PB2
PD♯2
E2
C3
G♯3
E4
C5
G♯5
PA♯2
PD2
F2
C♯3
A3
F4
C♯5
A5
PA2
PC♯2
F♯2
D3
A♯3
F♯4
D5
A♯5
PG♯2
PC2
G2
D♯3
B3
G4
D♯5
B5
PG2
C2
G♯2
E3
C4
G♯4
E5
C6
PF♯2
C♯2
A2
F3
C♯4
A4
F5
PF2
D2
A♯2
F♯3
D4
A♯4
F♯5
IC7
BUFF
CPU
CONTROL PANEL SW.
FASCINATING & COMPU CORDER
AUTO RHYTHM
UPPER
PEDAL
LOWER

Fig. 2

ADJUSTMENT

No.	Item	Measuring device	Adjusting point	Measuring point	Conditions	Adjustment
1	Upper oscillator frequency	Freq. counter	GF board L1 coil	MA board F2 fuse	Upper draw-bar 4′ : MAX Upper pitch volume: Center	Upper A5 key being depressed, adjust L1 so that frequency becomes 1768 Hz.
2	Lower oscillator frequency	″	GF board L2 coil	″	Lower draw-bar 4′ : MAX Lower pitch volume: Center	Lower A5 key being depressed, adjust L2 so that frequency becomes 1768 Hz.
3	Percussive oscillator frequency	–	GF board L3 coil	By ear	Upper draw-bar 8′ : MAX Electric piano: ON Percussive pitch: Center	Depressing an upper key voluntarily, adjust L3 so that sounds of the 8′ and electric piano become zero beat.
4	Total volume range	AC valve voltmeter	SE board R511	MA board F2 fuse	Expression pedal : MAX Upper draw-bar 8′: MAX	Depressing an upper key voluntarily, adjust R511 so that difference between MAX and MIN values of the total volume becomes 16 dBs.
5	Center channel level	″	SE board R527	MA board F1 fuse	Pedal draw-bar 16′, 8′, Expression, Total volume: all MAX	Depressing the pedal C3 key, adjust R527 so that the level becomes 8 Vrms.
6	R channel level	″	SE board R528	MA board F2 fuse	Upper drawbar 16′, 8′, 4′, Expression, Total volume: all MAX	Turning on upper C4, E4 and G4 keys simultaneously, adjust the level to become 4.5 Vrms.
7	L channel level	″	SE board R526	MA board F3 fuse	″	″
8	Synthe. pitch H	–	SY board R18	By ear	Upper draw-bar 4′ : MAX Whistle: ON Synthe. volume: Center Synthe. pitch: Center	Depressing the upper B6 key, adjust R18 so that sounds of draw-bar and whistle become zero beat.
9	Synthe. pitch L	–	SY board R21	″	″	Depressing the upper D3 key, adjust R18 so that sounds of draw-bar and whistle become zero beat. Repeat the items 8 and 9 a few times.
10	Synthe. triangular waveform	Oscilloscope	SY board R120	SY board J11 (Emitter of Q31)	Whistle : ON	Depressing an upper key voluntarily, adjust R120 to obtain the waveform shown below. 
11	Synthe. VCF	″	SY board R214	SY board J89 (IC19 pin 9)	Jazz guitar : ON	Turning on the upper key, adjust R214 so that sine waveform becomes maximum.
12	Synthe. VCA	–	SY board R263	By ear	Jazz guitar : ON Synthe. volume, Tone changer, Expression, Total volume : all MAX	Turning off the key, adjust R263 so that sound leakage becomes minimum.
13	Synthe. noise	–	SY board R236	By ear	Jazz flute or Saxophone: ON Synthe. volume: Voluntary	Depressing an upper key voluntarily, adjust R236 so that noise at appropriate level can be heard.
14	Stereo	Oscilloscope	SE board R96	SE board IC14 Pin 1	Accordion : OFF	Adjust R96 so that the peak value of the waveform becomes V (see the figure below). 
15	Tremolo speed	Freq. counter	SE board R121	SE board IC19 Pin 7	Chorus/Tremolo : TREMOLO Tremolo speed: Center	Adjust R121 to obtain 6.5 Hz (155 ms) of tremolo speed.
16	Brass fc	Oscilloscope	SE board R354	SE board C52 Pin 8	Wow brass : ON Brass ensemble volume : MAX	Depressing the upper key, adjust R354 so that sine waveform becomes maximum.
17	Brass ensemble balance	–	SE board R344	By ear	Brass ensemble volume : MAX	Turning on and off the trumpet switch, adjust R344 so that click noise becomes minimum.
18	Accomp. brass fc	–	GF board R419	–	–	Set R419 at its center position.
19	Accomp. brass balance	–	GF board R396	By ear	Start fascinating chord and sound accomp. brass.	Adjust R396 to obtain minimum noise.
20	Bass guitar fc	Oscilloscope	GF board R465	GF board IC55 Pin 1	–	Depressing the pedal C2 key, adjust R465 to obtain the waveform shown below. 
21	Vibraphone MOD.	″	GF board R525	MA board F2 fuse	Percussive preset volume: MAX Vibraphone: ON	Sound by depressing an optional upper key and adjust R525 to obtain 50% modulation.
22	Percussive vibrato	–	GF board R203	–	–	Set R203 at its fully clockwise position.
23	Percussive bender		GF board R218	–	–	Set R218 at its fully clockwise position.

■ PARTS LIST BY KIND

Kind	⚠	Parts No.	Parts Name	Description	Q'ty
Semi-conductor		AN6914	IC	SY, GF, PR boards	5
		BA6110	″	SY, SE, GF, PR boards	35
		BA6251	″	CR, CC, RS boards	5
		LM8942	″	SY, GF boards	5
		LA4170	″	SE	1
		NJM4558DD	″	SY, SE, GF, DB, PR boards	51
		MN3004	″	SE board	3
		MN3006	″	SE board	2
		MN3007	″	SE board	1
		MSM4011RS	″	SE board	6
		STK082-105	″	MA board	2
		STK465SA	″	MA board	1
		TC4011BP	″	SY board	1
		TC4013BP	″	SY board	1
		TC4049BP	″	SY, GF, RS boards	10
		TC4053BP	″	SE, GF boards	5
		TC4066BP	″	SY, SE, GF, PR boards	17
		TC4069UBP	″	SE, GF boards	3
		TC4094BP	″	SY, SE, PR boards	7
		TC5081P	″	SY board	1
		TC40H000P	″	PR board	1
		TC40H002P	″	PR board	2
		TC40H138P	″	PR, RS, AA, CR boards	4
		TC40H244P	″	PR board	1
		TC40H373P	″	PR board	2
		TC4514BP	″	PR board	1
		TL082CP	″	SY board	4
		UPD444C-1	″	PR board (RAM)	1
		UPC7815H	″	MA board	2
		UPC7805H	″	MA board	2
		UPC7915H	″	MA board	1
		UPD80C49HC-012	″	PR board (CPU)	1
		UPD2732C-P003	″	PR board (ROM)	1
		UPD4584BC	″	PR board	1
		VC1032-02	″	GF board	3
		″ -03	″	GF board	3
		″ -04	″	GF board	3
		″ -05	″	GF board	2
		″ -06	″	GF board	1
		″ -07	″	GF board	1
		″ -08	″	GF board	1
		″ -09	″	GF board	2
		″ -10	″	GF board	1
		″ -11	″	SE board	4
		VC4050B(H)	″	GF board	5
		2SC1570NP(F)	Transistor	SY, SE, GF, MA, PR, RS boards	135
		2SA781K	″	SY board	2
		2SA798G	″	SE, GF, SY boards	3
		2SA929(F)	″	SY, SE, GF, PR boards	18
		2SC1583G	″	SE board	1
		2SC3069	″	PR board	1
		DTA114N	″	RS board	3
		2SC828(R)	″	GF board	7
		2SD330(E)	″	MA board	1
		1S1555	Diode	SY, SE, GF, AA, CC, DP, PR, RS boards	309

Kind	⚠	Parts No.	Parts Name	Description	Q'ty
Semi-conductor		DBA40C-K15	Block Diode	MA board	3
		2SK163(M,N)	FET	SY, SE, GF boards	12
		2SK30A(Y)	″	GF board	1
		LB203YB	LED (7-segment)	MA board	3
		GL-5PR6	LED	RS board	1
		GL-5EG21	″	RS board	3
		PR5534S-1	″	RS board	1
		SLR-54VR3F	″	AA board	1
		SLR-54MG3F	″	AA board	1
		LR-1140(-YC,-VC,-MC)	″	CC, DP, RS boards	19
Resistor		QVG4A2A-014V	Volume	AX board	1
		QVP8A0B-014	″	SY, GF boards (10 kΩ, Semi-fixed)	3
		″ -015	″	GF board (100 kΩ, Semi-fixed)	2
		″ -023	″	SY board (2 kΩ, Semi-fixed)	1
		″ -024	″	SE board (20 kΩ, Semi-fixed)	1
		″ -025	″	SE board (200 Ω, Semi-fixed)	5
		″ -052	″	SY board (500 kΩ, Semi-fixed)	1
		″ -054	″	SY, SE, GF boards(50 kΩ, Semi-fixed)	9
		″ -055	″	SY board (500 kΩ, Semi-fixed)	1
		SMV2030	Slide Volume	AA, CL, CR boards (10 kΩ B)	21
		SMV2032	″	CL board (1 MΩ A)	1
		SMV2157	″	TV board S2018 (10 kΩ B)	3
		SMV2018-WHT	Volume (Draw-bar)	DB board	9
		″ -YEL	″ (″)	DB board	3
		SMV2146	Slide Volume	RS board	1
		SMV2145	″	PC board (Pitch & Tremolo speed)	4
Switch		SM40294-015	Push Switch	RS board	1
		″ -016	″	AA board (8-way)	1
		″ -017	″	RS board	1
		″ -018	″	AA board	
		SMV2139	Digital Switch	RS board (Tempo Volume)	1
		SMV2138	Lever Switch	CL, CR boards	40
		SM40152	Tact Switch	CC, DP, RS boards	20
		SM2164	Key Switch	MKM, FS boards	100
		SMV2144-BS	Power Switch		1
Coil	⚠	SM3462-001	Osc. Coil	GF board	3
		SMV2087-BS	SC Coil	AC board	1
Others		SM4236	CdS	EP board	1
		SMV2152	Heat Sink	MA board	5
		SMV2151	″	Power Assembly	1
		E48965-002	Fuse Holder	MA, AC boards	14
	⚠	QMF51S1-2R5	Fuse	MA board for Model A.P	3
	⚠	″ -2R0	″	MA board for Model A.P	3
		QMF51S1-2R5-BS	″	MA board for Model B.H.N.V.	3
		QMF51S1-2R0-BS	″	MA board for Model B.H.N.V.	3
		QMF51S1-4R0	″	AC board for Model A.P.	1
		QMF51A2-2R0-BS	″	AC board for Model B.H.N.V.	1
		HSA3004-01X	Speaker	30 cm	1
		HSA2004-01C	″	20 cm Left & Right	2
		″ -01D	″	20 cm Front	1
		HSA0601-01S	″	6 cm	2
	⚠	QMP9020-101-BS	Power Cord	for Model V, B	1
	⚠	QMP4238-200	″	for Model N, A	1
	⚠	QMP2408-200	″	for Model H	1
	⚠	SCV0416-2M5	″	for Model A	1
	⚠	SMV2149-BS	Power Transformer	for Model B.H.N.V	1
Knob		SMV2148	Lever Knob	for Model A.P.	1
		SM2706 -060	″	Blue (Pedal - Lower)	
		″ -018	″	Blue (Key click)	1
		″ -061	″	Blue (Percussive 5-1/3′)	1

Kind	⚠	Parts No.	Parts Name	Description	Q'ty
Knob		SM2706-062	Lever Knob	Blue (Percussive 4′)	1
		″ -014	″	Blue (Percussive 2-2/3′)	1
		″ -063	″	Blue (Slow attack)	1
		″ -064	″	White (Organ)	1
		″ -011	″	White (Jazz organ)	1
		″ -065	″	Blue (Upper/Lower)	3
		″ -024	″	Red (Trombone)	2
		″ -005	″	Red (Saxophone)	1
		″ -006	″	Red (Trumpet)	2
		″ -028	″	Orange (Jazz flute)	1
		″ -007	″	Orange (Clarinet)	1
		″ -008	″	Yellow (Violin)	1
		″ -070	″	Yellow (Whistle)	1
		″ -035	″	Yellow (Jazz guitar)	1
		″ -088	″	Yellow (Piano)	1
		″ -072	″	Yellow (Electric piano)	1
		″ -089	″	Yellow (Harpsichord)	1
		″ -003	″	White (Vibraphone)	1
		″ -073	″	White (Guitar)	1
		″ -074	″	White (Hawaiian guitar)	1
		″ -075	″	White (Wow brass)	1
		″ -076	″	Orange (Upper)	1
		″ -077	″	Orange (Lower)	1
		″ -078	″	White (Upper I)	1
		″ -079	″	White (Upper II)	1
		″ -080	″	White (Lower I)	1
		″ -081	″	White (Lower II)	1
		″ -082	″	Yellow (Upper I)	1
		″ -083	″	Yellow (Upper II)	1
		″ -084	″	Yellow (Lower I)	1
		″ -085	″	Yellow (Lower II)	1
		″ -086	″	Blue (Upper)	1
		″ -087	″	Blue (Lower)	1
		SM3966	Push Knob	Silver (Square knob)	20
		SM3868-WHT	″	White (Rhythm SW and others)	16
		″ -YEL	″	Yellow (″)	8
		″ -BUL	″	Blue (″)	8
		″ -ORG	″	Orange (Fascinating ON)	1
		″ -BLK	″	Black	14
		SM3763-RED	Slide Knob	Control Panel	9
		SM30675-001	Round Knob	Mic. Volume	1
		SM40410	Slide Cap		18

CABINET ASSEMBLY

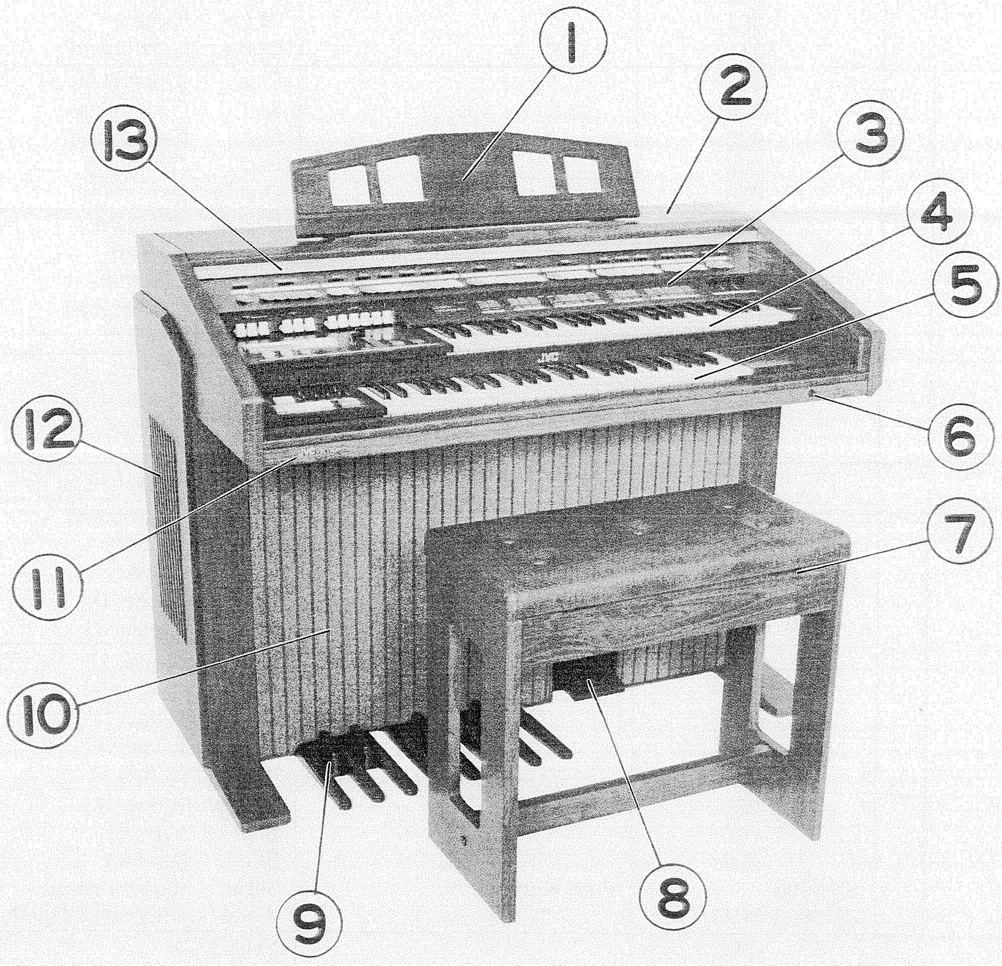


Fig. 10

PARTS LIST Symbol No. 5 1

No.	⚠	Parts No.	Parts Name	Description	Q'ty
1		SM3953	Music Stand		1
2		SM3954	Top Panel		1
3		OLSM2000	Control Panel Ass'y		1
4		OLSM2002	Upper Ass'y		1
5		OLSM2008	Lower Ass'y		1
6		SM40266	LED Case		1
7		SM1388	Stool Ass'y		1
8		OLSM2014	Expression Unit		1
9		OLSM1160	Pedal Key Ass'y		1
10		SM40423-001	Saran		1
11		SM40285	Brand Mark		1
12		SM2770	Side Grille		1
13		OLSM2029	Slide Lid Ass'y		1

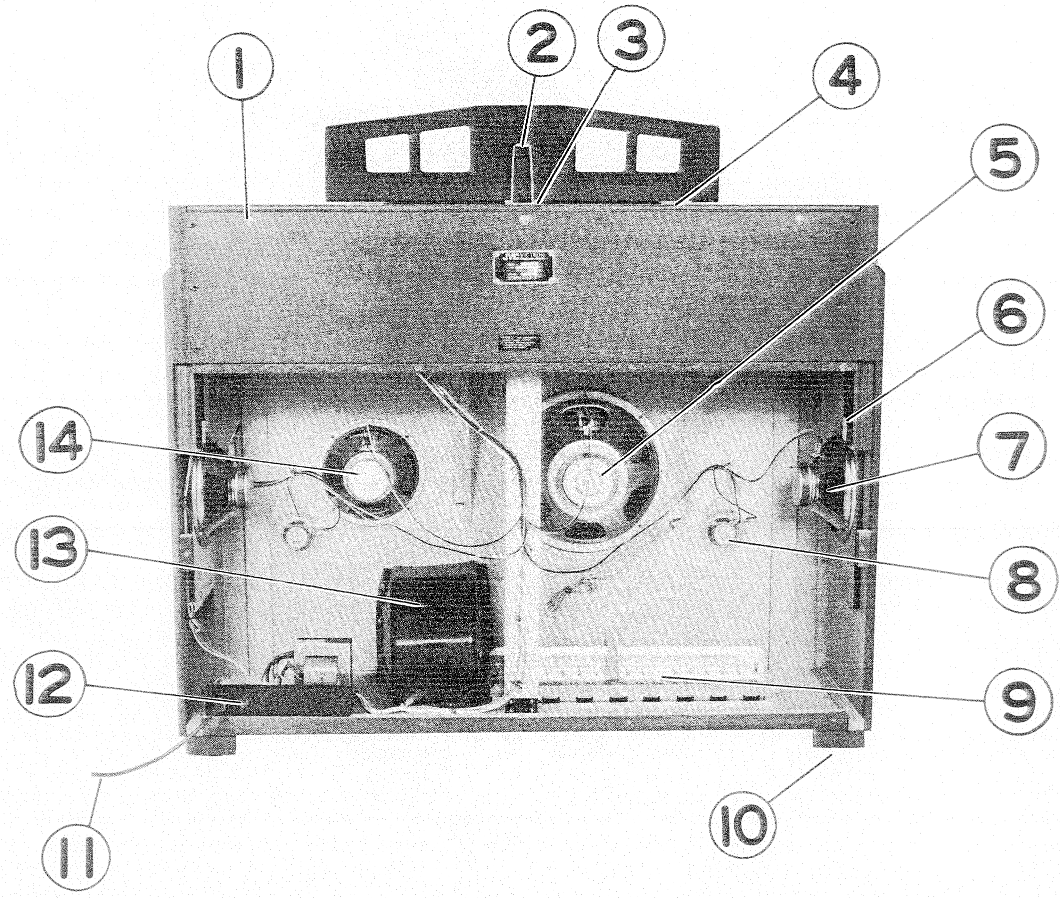


Fig. 11

PARTS LIST Symbol No. 5 2

No.	⚠	Parts No.	Parts Name	Description	Q'ty
1		SPSP6025N	Screw		3
2		SM4466-001	Stopper		1
3		SM4465	Holder		1
4		J4171-1	Hinge		2
5		HSA3004-01X	Speaker	30 cm Woofer	1
6		SM2594	Slide Guide		2
7		HSA2004-01C	Speaker	20 cm (Right and Left)	2
8		HSA0601-01S	Speaker	6 cm Tweeter	2
9		OLSM1160	Pedal Key Ass'y		1
10		SM4711	Protector		4
11	⚠	SMV2150	Power Cord		1
12	⚠	OLSM2017	Power Ass'y		1
13		SM2305	Expression Cover		1
14		HSA2004-01D	Speaker	20 cm (Front)	1

CONTROL PANEL ASSEMBLY

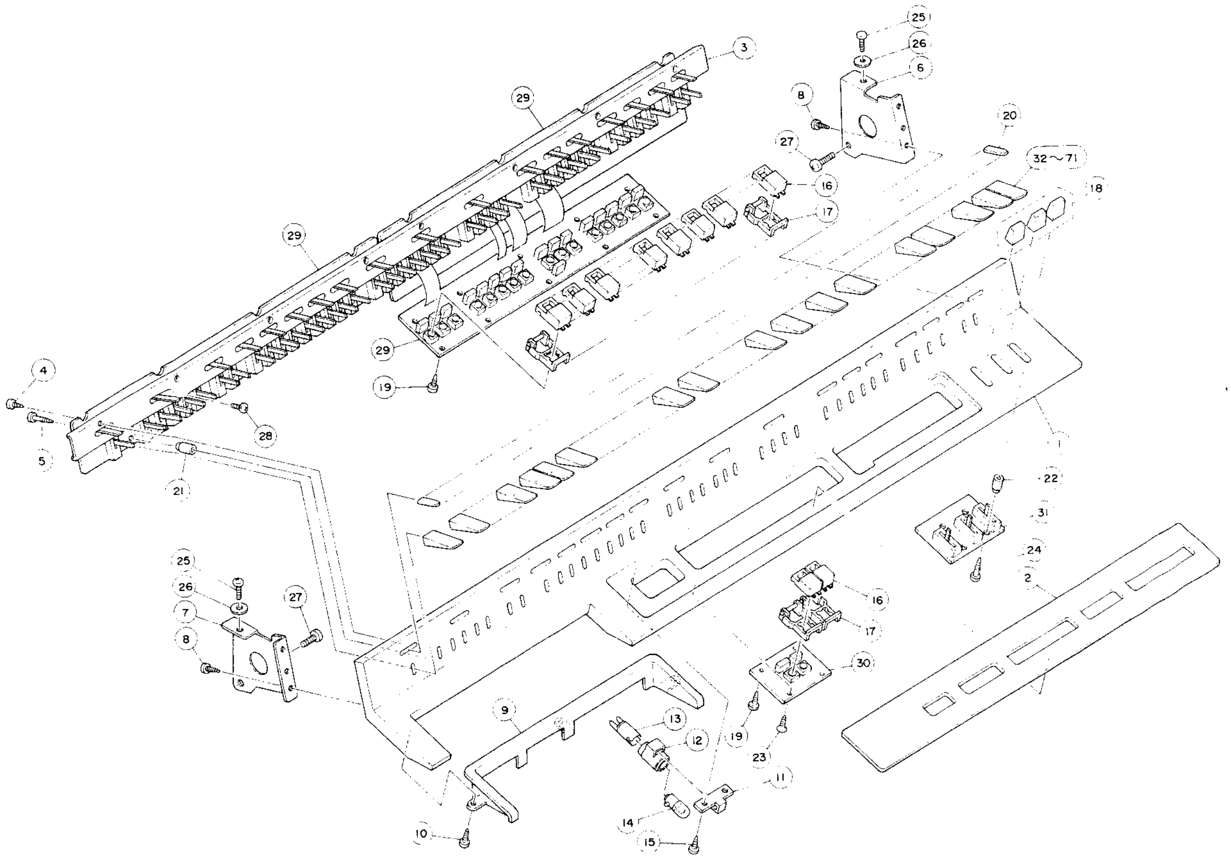

25
26
6
3
8
29
20
27
32～71
16
18
17
29
4
29
19
28
5
21
22
31
24
2
25
26
27
7
8
16
17
30
9
13
12
19
23
11
10
14
15

Fig. 12

PARTS LIST Symbol No. 5 3

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM2000	Control Panel Ass'y		1
1		SM1389	Control Panel		1
2		SM1397	Control Plate - 1		1
3		SM2778	CS P.C.B. Holder		1
4		MRSP3110Z	Screw		8
5		MRSP3120Z	〃		8
6		SM3971-00R	Control Side Bracket (R)		1
7		SM3971-00L	〃 (L)		1
8		MRSP3110Z	Screw		6
9		SM3965	Draw-bar Fitting		1
10		MRSP3110Z	Screw		3
11		SM40413	Lamp Bracket		1
12		SM40251	Lamp Holder		1
13		SM4664	Lamp Socket		1
14		SM4663	Lamp		1
15		MRSP3110Z	Screw		2
16		SM3966	Push Knob		18
17		SM3967	Push Knob Base		18
18		SM3763-RED	Slide Knob		3
19		MRSP3110Z	Screw		
20		SM40410	Slide Cap		18

No.	⚠	Parts No.	Parts Name	Description	Q'ty
21		SM40302-315	Bushing		8
22		″ -305	″		4
23		MRSP3110Z	Screw		
24		MRSP3116Z	″		4
25		SPSP4008Z	″		2
26		SPSP5010Z	″		2
27		SDSP2006M	″		12
28		″	″		26
29		SMK36	CL Board Ass'y	CS Board Ass'y	1
			CC Board Ass'y		1
			CR Board Ass'y		1
30			DP Board Ass'y		1
31			TV Board Ass'y		1
32		SM2706-060	Lever Knob	Blue Pedal - Lower	1
33		″ -018	″	Blue Key Click	1
34		″ -061	″	Blue Percussive 5-1/3'	1
35		″ -062	″	Blue Percussive 4'	1
36		″ -014	″	Blue Percussive 2-2/3'	1
37		″ -063	″	Blue Slow Attack	1
38		″ -064	″	White Organ	1
39		″ -011	″	White Jazz Organ	1
40		″ -065	″	Blue Upper/Lower	1
41		″ -024	″	Red Trombone	1
42		″ -005	″	Red Saxophone	1
43		″ -006	″	Red Trumpet	1
44		″ -028	″	Orange Jazz Flute	1
45		″ -007	″	Orange Clarinet	1
46		″ -008	″	Yellow Violin	1
47		″ -070	″	Yellow Whistle	1
48		″ -035	″	Yellow Jazz Guitar	1
49		″ -065	″	Blue Upper/Lower	1
50		″ -088	″	White Piano	1
51		″ -072	″	White Electric Piano	1
52		″ -089	″	White Harpsichord	1
53		″ -003	″	White Vibraphone	1
54		″ -073	″	Yellow Guitar	1
55		″ -074	″	Yellow Hawaiian Guitar	1
56		″ -065	″	Blue Upper/Lower	1
57		″ -024	″	Red Trombone	1
58		″ -006	″	Red Trumpet	1
59		″ -075	″	Red Wow Brass	1
60		″ -076	″	Orange Upper	1
61		″ -077	″	Orange Lower	1
62		″ -078	″	White Upper I	1
63		″ -079	″	White Upper II	1
64		″ -080	″	White Lower I	1
65		″ -081	″	White Lower II	1
66		″ -082	″	Yellow Upper I	1
67		″ -083	″	Yellow Upper II	1
68		″ -084	″	Yellow Lower I	1
69		″ -085	″	Yellow Lower II	1
70		″ -086	″	Blue Upper	1
71		″ -087	″	Blue Lower	1

UPPER ASSEMBLY

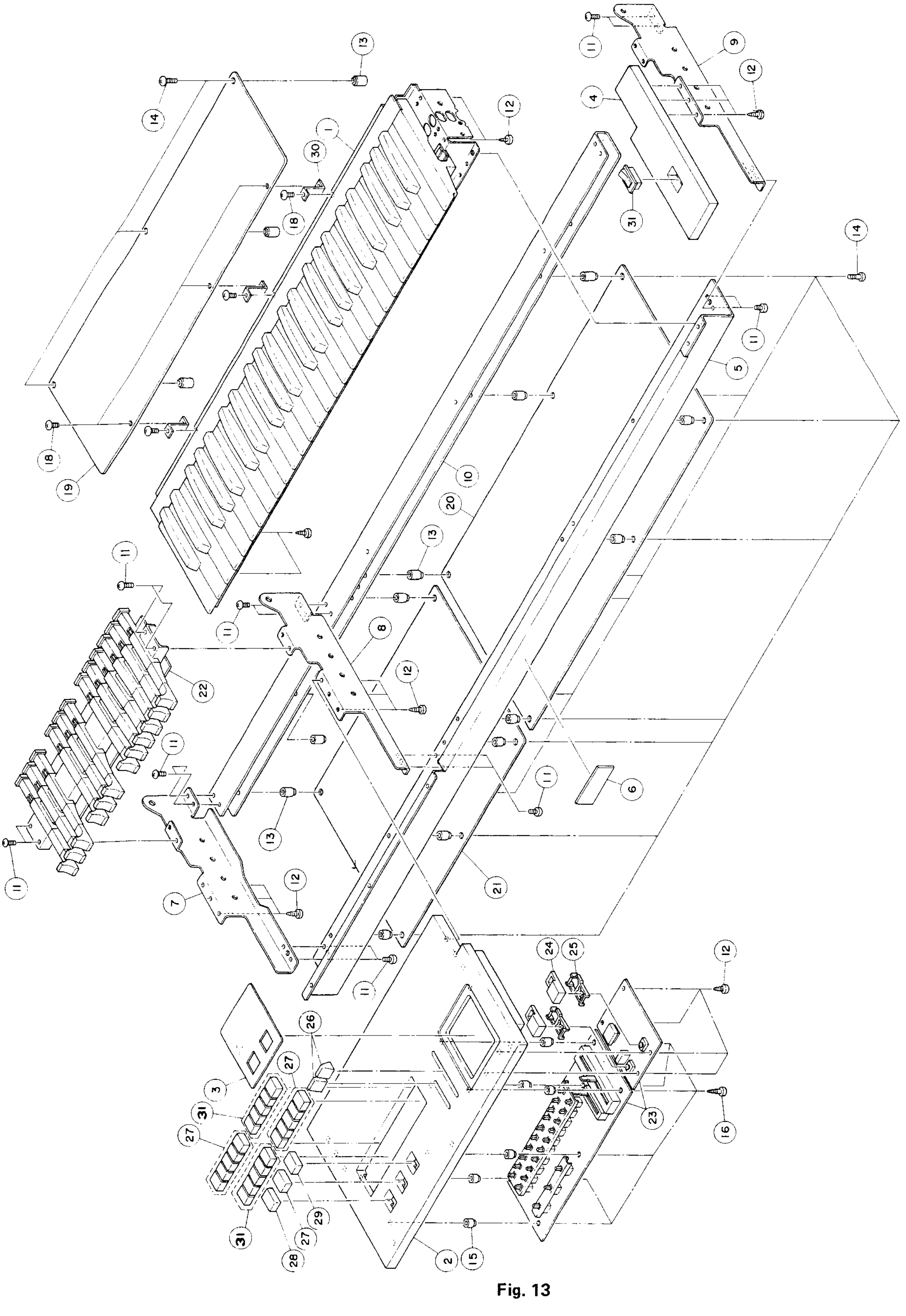

13
14
11
9
12
4
12
1
30
18
31
14
11
5
18
19
10
20
13
11
11
8
22
12
11
6
13
21
11
12
7
11
24
25
12
26
3
27
31
23
27
16
29
31
27
28
15
2

Fig. 13

UPPER ASSEMBLY PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM2002	Upper Ass'y		1
1		OLSM1794	MK-49 Ass'y		1
"		SMK25	MK-49 P.W.B. Ass'y		1
2		SM2773	UL Panel		1
3		SM40409	Control Panel - 2		1
4		SM3964	UR Panel		1
5		SM2775	Key Panel		1
6		SM40220	Brand Mark		1
7		SM2776-00L	Upper Holder L		1
8		" -00C	" C		1
9		" -00R	" R		1
10		SM2777	P.C.B. Holder		1
11		SBST3008Z	Tapping Screw		16
12		MRSP3110N	Wood Screw		13
13		SM40302-305	Bushing		15
14		SBST3012	Tapping Screw	for PR, SE P.W.B.	15
15		SM40302-307	Bushing		6
16		MRSP3116	Wood Screw	for RS P.W.B.	6
17		SM40411	SY P.W.B. Bracket		3
18		SBST3008Z	Tapping Screw	for SY P.W.B. Bracket	6
19		SMK37	SY P.W.B.	Synthe. P.W.B.	1
20		SMK38	SE P.W.B.	Stereo & Ensemble P.W.B.	1
21		SMK39	PR P.W.B.	Processor & Rhythm P.W.B.	1
22		SMK40-02	DB P.W.B.	Draw-bar P.W.B.	1
23		SMK37-02	RS P.W.B.	Rhythm Select P.W.B.	1
24		SM3966	Push Knob	Synchro. Start & Stop	2
25		SM3967	Push Knob Base		2
26		SM3763-RED	Slide Knob	Rhythm Tempo, Rhythm Volume	2
27		SM3868-WHT	Push Knob		13
28		" -WHT	"		1
29		" -WHT	"		1
		" -BLK	"		10
30		SM40296	Screw	for Fixing MK-49 P.W.B.	26

LOWER ASSEMBLY

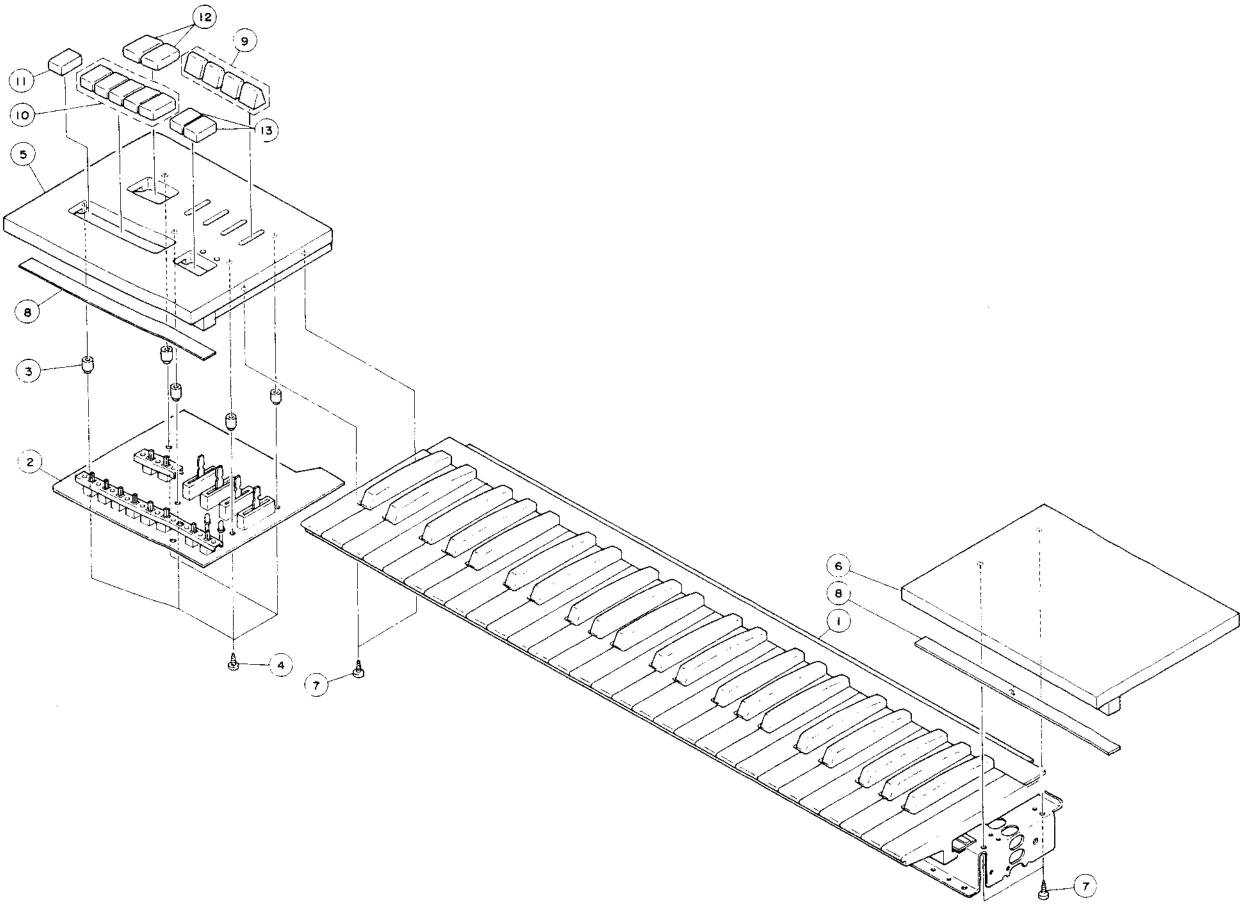


Fig. 14

PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM2008	Lower Ass'y		1
1		OLSM1795	MK-49 Ass'y		1
"		SMK25	MK-49 P.W.B. Ass'y		1
2		SMK40-03	AA P.W.B. Ass'y		1
3		SM40302-307	Bushing	for AA P.W.B.	6
4		MRSP3116Z	Wood Screw	for "	6
5		SM3961	L.L. Panel		1
6		SM3962	L.R. Panel		1
7		MRSP3116Z	Wood Screw	for Keyboard & Panel	4
8		SM4990-041-BAS	Felt	for L.L. & L.R. Panels	2
9		SM3763-RED	Slide Knob		4
10		SM3868-WHT	Push Knob		5
11		" -BLK	"		1
12		" -BLK	"		2
13		" -BLK	"		2

MANUAL KEYBOARD ASSEMBLY (common between Upper & Lower keyboards)

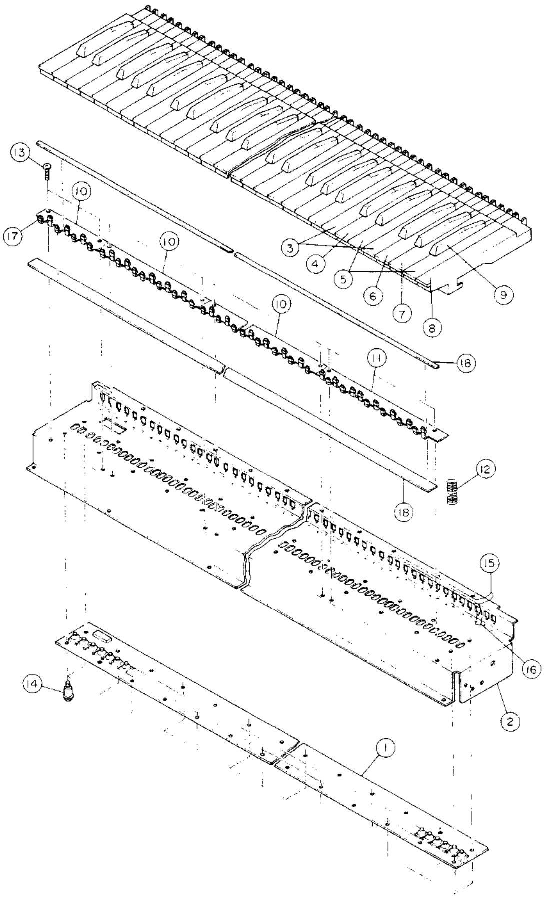


Fig. 15

PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
			MK49 Ass'y		1
1		SMK25	MKM49 P.W.B. Ass'y		1
2		SM2733-049	MK Chassis		1
3		SM2732-0CF	White Key	C, F	8
4		" -00D	"	D	4
5		" -0EB	"	E, B	8
6		" -00G	"	G	4
7		" -00A	"	A	4
8		" -0CC	"	C (Treble octave)	1
9		SM3860	Black Key		20
10		SM3861-013	Key Guide		1
11		" -012	"		3
12		SM40281	Spring		49
13		SBST3008Z	Tapping Screw		8
14		SM40296	Screw		15
15		SM4990-067-EVS	Felt	0.7 m	1
16		SM40213-003	Adhesive Tape (Both sides)	0.7 m	1
17		SM40205-002	Guide Rubber		49

PEDAL KEY ASSEMBLY

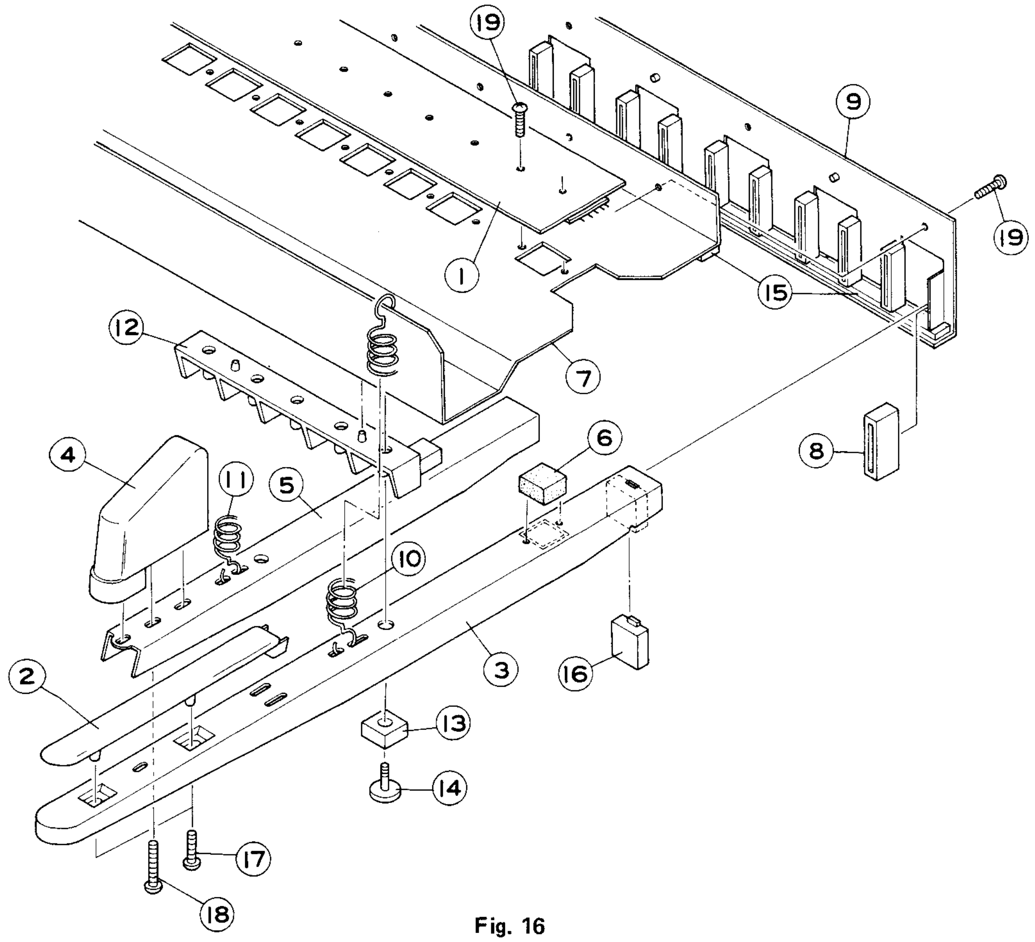


Fig. 16

PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM1160	Pedal Key Ass'y		1
1		OLSM1161	PK-1 Board Ass'y		
2		SM3742	White Pedal Key		8
3		SM2683	White Pedal Key Base		8
4		SM3743	Black Pedal Key		5
5		SM3745	Black Pedal Key Base		5
6		SM3677-002	Cushion		13
7		SM2682-002	Pedal Key Chassis		1
8		SM40193-002	Key Guide		16
9		SM3746	Key Guide Base		1
10		SM40196-00W	P.K. Spring	for White Keys	8
11		" -00B	"	for Black Keys	5
12		SM3744	Key Supporter		3
13		SM40194	Rubber Washer		13
14		SM40195	Pedal Key Shaft		13
15		SM4990-047-BH	Felt		1
16		SM0232	P.K. Damper		13
17		SBSF4012Z	Tapping Screw		16
18		SBSF4020Z	"		5
19		SBST3008	"		12

EXPRESSION PEDAL

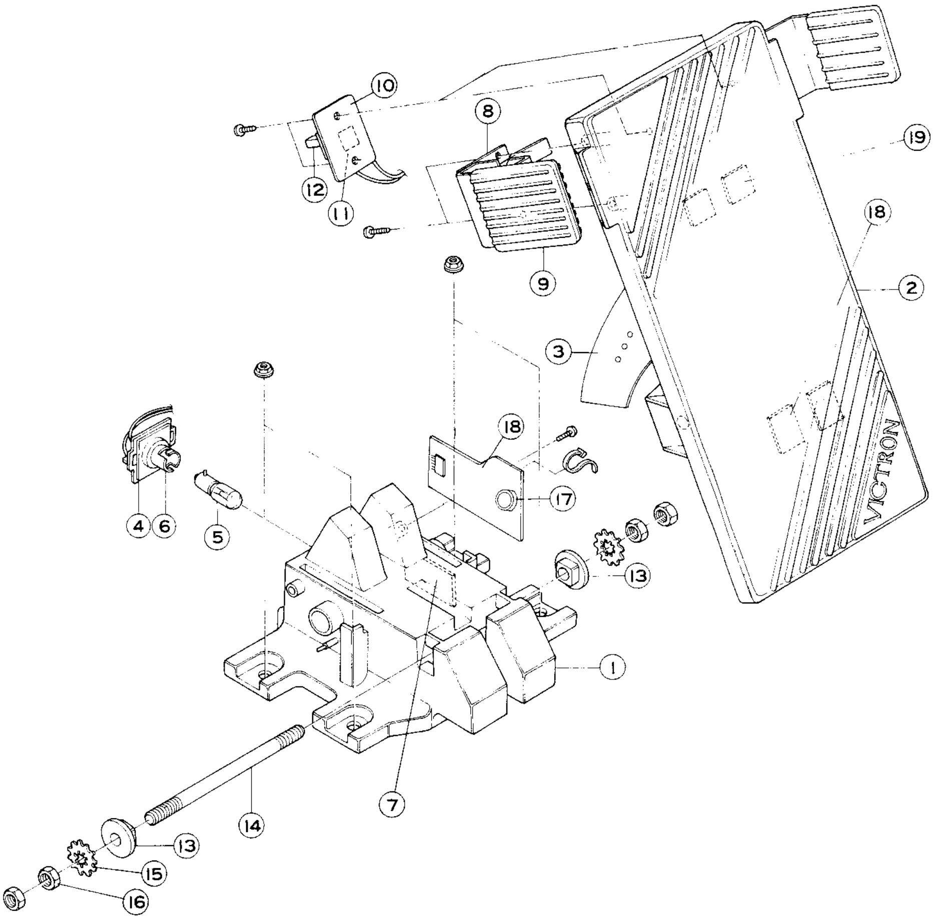


Fig. 17

PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM1690	Expression Ass'y		1
1		SM1232	Expression Base		1
2		SM1233	Expression Plate		1
3		SM3859	Slit Plate - 2		1
4		SM4660	Lamp Holder		1
5		SM4663	Pilot Lamp		1
6		SM4664	Lamp Socket		1
7		SM4657-002	Light Diffuser		1
8		SM3675	F.S. Operation		2
9		SM40029	F.S. Cover		2
10		SMK40-06	FS Board Ass'y		1
11		*SMV2063	Key Switch		2
12		SM3677-006	Cushion		1
13		SM40153	Bushing		2
14		SM4662-002	Shaft		1
15		WABS6000D	Washer		2
16		NNS6000Z	Nut		4
17		SM4263	CdS		1
18		SMK40-05	EP Board Ass'y		1
19		SM4990-003-WPS	Felt		2
20		SM3714-002	Polyurethane		2

POWER ASSEMBLY

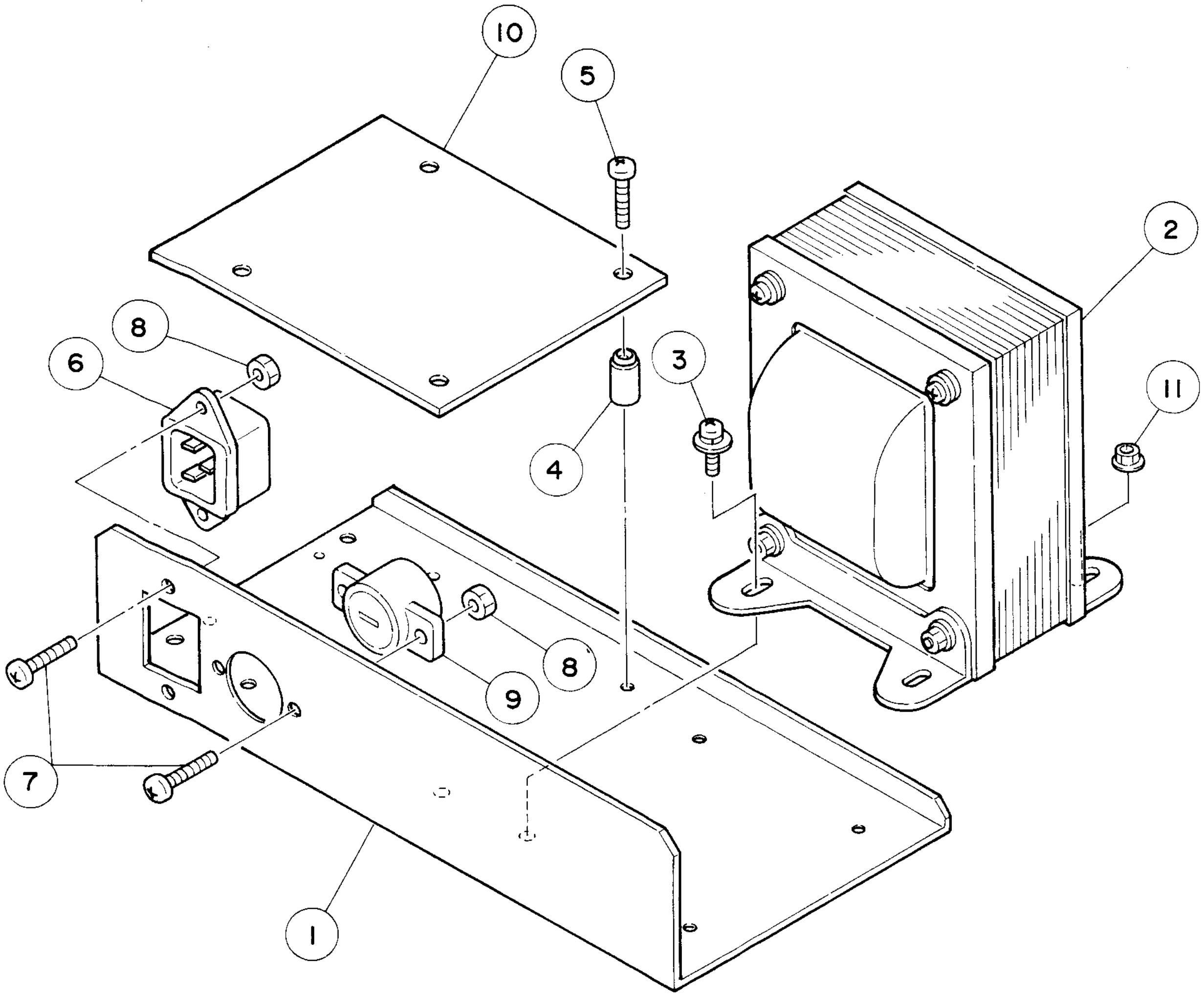


Fig. 18

PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM2020	Power Supply Assembly		1
		SMK40-04	AC Ass'y		1
1		SM3970-00A	AC Chassis		1
2	⚠	SMV2149-BS	Power Transformer	for Model B.H.N.V	1
	⚠	SMV2148	〃	for Model A.P	
3		DPSP4008Z	Assembly Screw		2
4		SM40302-310	Bushing	for AC P.W.B.	4
5		SBST3016Z	Tapping Screw	for 〃	4
6	⚠	QMC0335-002	Inlet		1
7		SPSP3012M	Screw	for Inlet	4
8		NNZ3000Z	Nut	for 〃	4
9		QSR0074-003-BS	Adjust Switch		—
10		SMK40-04-A	AC P.W.B. Ass'y		1
11			Nut		2

POWER AMP ASSEMBLY

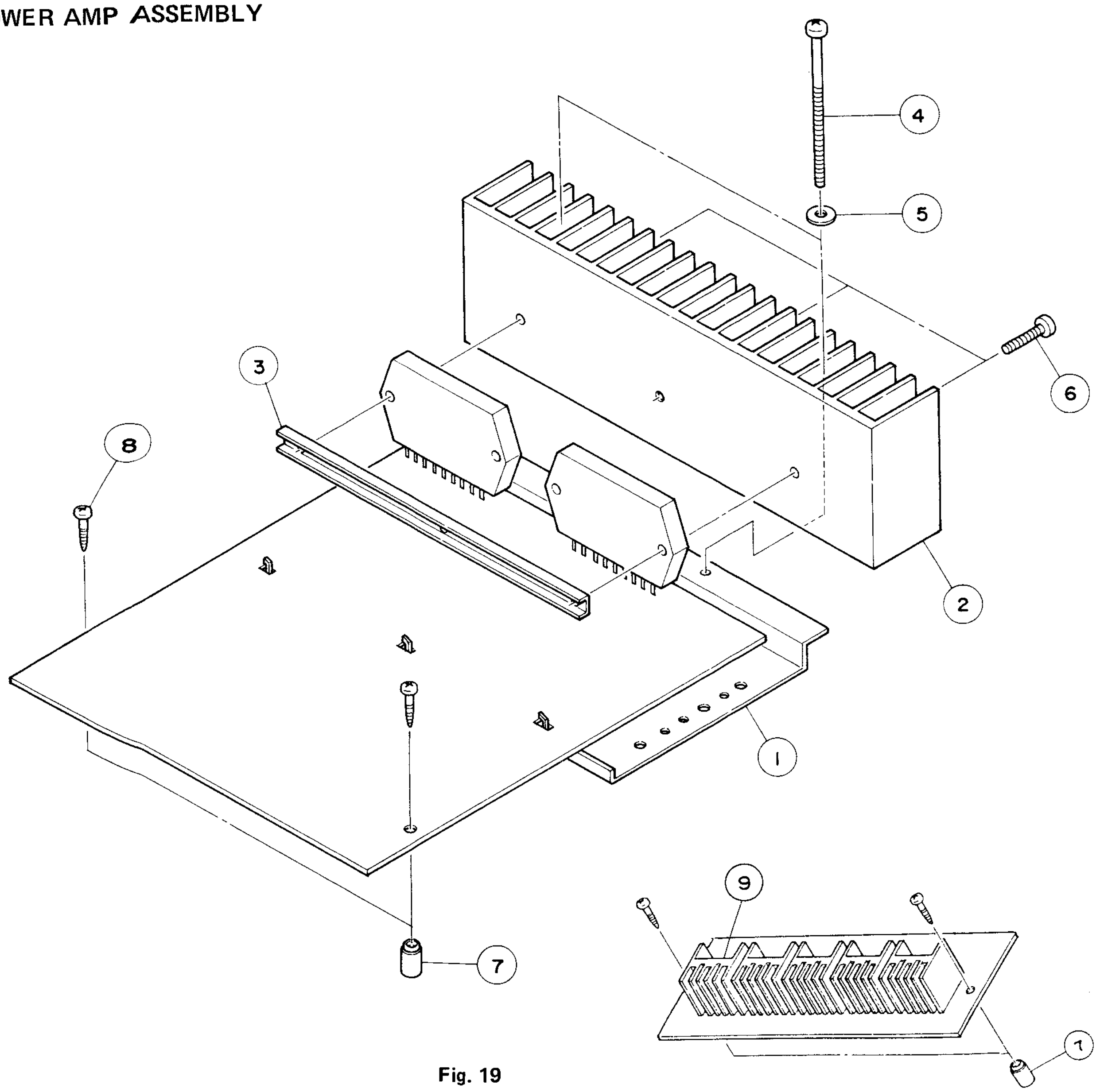


Fig. 19

PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM2017	Power Amp Ass'y		1
		SMK40-01	MA Ass'y		1
1		SM3969	MA Chassis		1
2		SMV2151	Heat Sink	for Power IC	1
3		SM40418	Power IC Holder		1
4		SPSP5080Z	Screw	for Power Heat Sink	2
5		Q03091-118	Washer	for ″	2
6		SPSP3016Z	Screw	for Power IC Holder	3
7		SM40302-310	Bushing		2
8		MRSP3116Z	Screw		2
9		SMV2152	Heat Sink		5

EXTERNAL ASSEMBLY

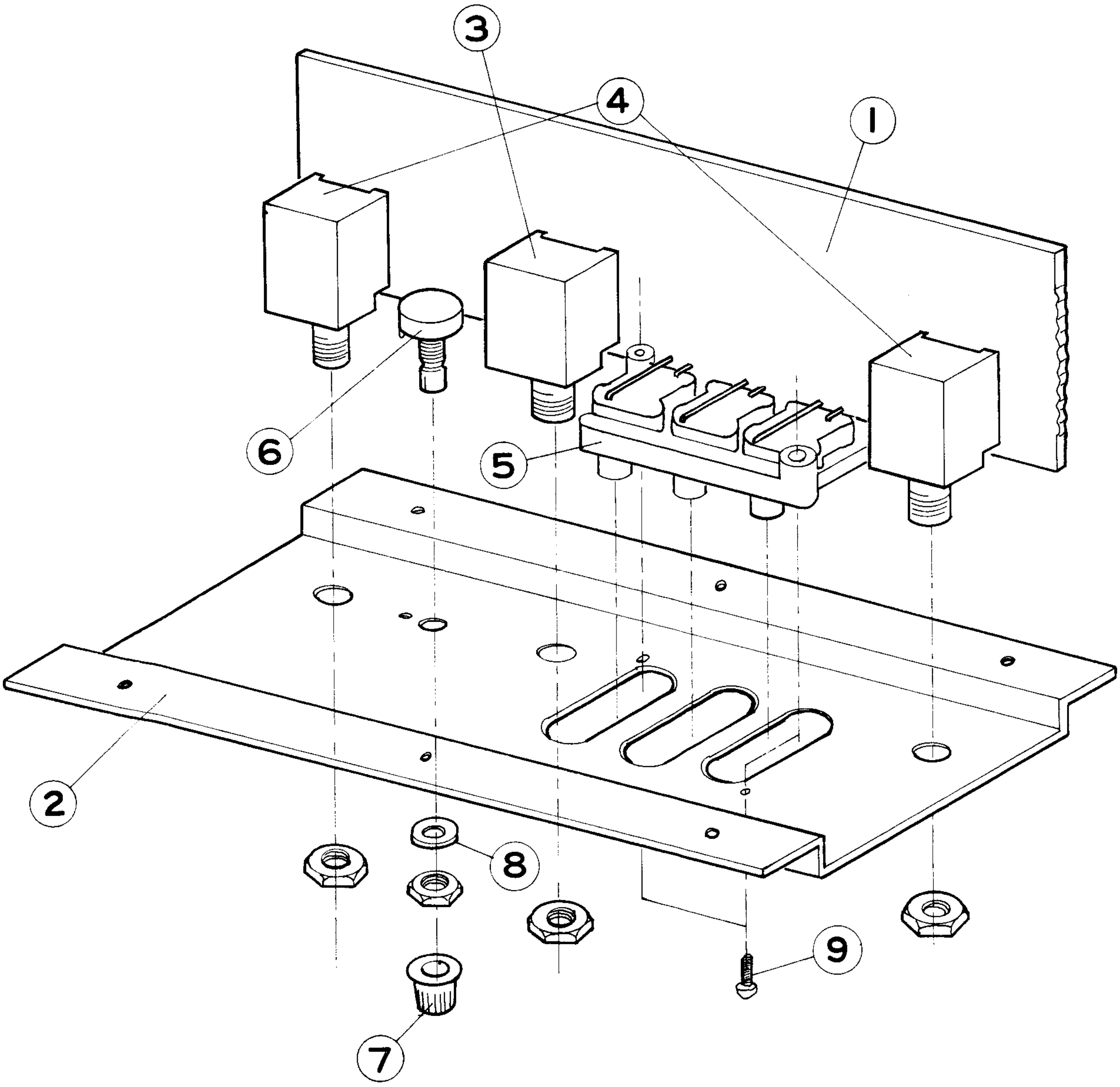


Fig. 20

PARTS LIST

No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM2012	External Ass'y		1
1		SMK37-03	AX Board Ass'y		1
2		SM3974	External Plate		1
3		QMS6303-011	Jack Ass'y	EXP. IN	1
4		QMS6312-013	"	Headphone & Mic.	2
5		JV0077	"	AUX	1
6		QVG4A2A-014V	Volume	for Mic.	1
7		SS30675-001	Knob		1
8		Q03093-118	Washer	for Mic Volume	1
9		SBSF3012	Tapping Screw	for AUX Jack	2

■ GF BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK41	GF P.W.B. Ass'y		1
IC27–29, 35–37, 46–48, 52, 53, 55, 57, 62, 68		NJM4558DD	IC		15
IC13, 17, 18		AN6914	″		3
IC56		LM8942	″		1
IC1, 3, 5, 6, 12		VC4050B(H)	″		5
IC31, 34, 40–45, 63, 64, 69		BA6110	″		11
IC14, 15, 16		TC4053BP	″		3
IC30, 33, 54, 65, 66 67		TC4066BP	″		6
IC32		TC4069UBP	″		1
IC2, 4, 7–11		TC4094BP	″		7
IC22, 51, 61		VC1032-02	″		3
IC21, 50, 60		VC1032-03	″		3
IC20, 49, 59		VC1032-04	″		3
IC19, 58		VC1032-05	″		2
IC26		*VC1032-06	″		1
IC25		*VC1032-07	″		1
IC24		*VC1032-08	″		1
IC23, 29		*VC1032-09	″		1
IC38		*VC1032-10	″		1
Q36		2SA798G	Transistor		1
Q1,2,6–9,14,15–18,21–26, 28–35,37–45,47,48,52–56		2SC1570NP(F)	″		42
Q13, 27, 51		2SA929(F)	″		3
Q3, 4, 5, 10, 11, 19, 20		2SC828(R)	″		7
Q46		2SK30A(Y)	FET		1
Q49, 50		2SK163(M,N)	″		2
D1–63		1S1555	Diode		60
R203, 396		QVP8A0B-04	V. Resistor	10 kΩ Semi-fixed	2
R419, 465		QVP8A0B-054	″	50 kΩ ″	2
R218, 525		QVP8A0B-015	″	100 kΩ ″	2
R165, 616, 617		QRZ0052-100	Fusible Resistor		3
RA1, 2, 3, 4		EXB-P88155J	R. Resistor	RA4: EXB-P86104K	4
L1, 2, 3		SM3462-001	OSC Coil		3
CN13, 58		SS30644-003	Post Header		2
CN10, 11		SS30644-004	″		2
CN4, 6		SS30644-005	″		2
CN43		SS30644-006	″		1
CN3, 7, 15		SS30644-008	″		3
CN5, 8, 9, 12		SS30644-010	″		4
FL1		SS43181-043	Flex. Jumper		1
FL2		SS431-053	″		1
FL3		SS181-063	″		1
FL4		SS43181-082	″		1
		QRD141J	C. Resistor		582
		QCS31HJ-	C. Capacitor		70
		QCF31HP-	″		15
		QFM31HJ-	M. Capacitor		75
		QEC61HM-	E. Capacitor		8
		QET61HM-	″		52
		QEN61HM	NPE Capacitor		20

■ PR BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK39	PR P.W.B. Ass'y		1
IC6		UPD80C49HC-012	IC	CPU	1
IC5		UPD2732C-P003	"	ROM	1
IC3		UPD444C-1	"	RAM	1
IC8		TC40H000P	"		1
IC9, 10		TC40H002P	"		2
IC1		TC40H138P	"		1
IC7		TC40H244P	"		1
IC2, 4		TC40H373P	"		2
IC29, 30		TC4066BP	"		2
IC28		TC4069UBP	"		1
IC12, 13, 14		TC4094BP	"		3
IC11		TC4514BP	"		1
IC31		UPD4584BC	"		1
IC16–27		NJM4558DD	"		12
IC32–34		BA6110	"		3
IC15		AN6914	"		1
Q1		2SC3069	Transistor		1
Q2		2SA929(F)	"		1
Q3–34		2SC1570NP(F)	"		33
D1, 2, 31–73		IS1555	Diode		47
RA1, 5		EXB-P88103K	R. Resistor		2
RA2		EXB-P14103K	"		1
RA3		EXB-P811103K	"		1
RA4		EXB-P812103K	"		1
RA7		EXB-P85153K	"		1
RA6		EXB-P85104K	"		1
RA8		EXB-P84684	"		1
CA1		EXF-P8101MW	C. Resistor		1
C1		SM40329-473	Super Capacitor	for RAM Back-up	1
X1		SMV2114	Ceralock	CPU Clock (10.7 MHz)	1
R299, 300		QRZ0052-220	F. Resistor		2
CN1		SS310530-16	Card Fit Connector		1
CN30, 42		SS30644-004	Post Header (Connector)		2
CN15, 32		SS30644	"		2
CN18		SS30644-007	"		1
CN31		SS30644-006	"		1
CN20		SS30644-003	"		1
CN14, 27–29		SS30644-008	"		4
CN12, 41		SS30644-010	"		2
CN33		SS30644-012	"		1
		QRD141J-	C. Resistor		284
CN11, 12		QET51ER-477	E. Capacitor		2
		QCS31HJ-	C. Capacitor		7
C2		QCF31HP-	"		1
		QFM31HJ-	M. Capacitor		96
		QET61AM-	E. Capacitor		2
		QET61EM-	"		5
		QET61HM-	"		9
		QEC61HM-	"		3
		QEN61EM-	NP Capacitor		6

■ SE BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK38	SE P.W.B. Ass'y		1
IC2,3,12,13,14,19,20,28,36 39,42–45,53,57,59,60,63 64,65,67		NJM4558DD	IC		23
IC10, 11, 17, 25		VC1032-11	"		4
IC5, 7, 9		MN3004	"		3
IC22, 24		MN3006	"		2
IC16		MN3007	"		1
IC26,27,32–35,41,46–52,61 62,66,68		BA6110	"		18
IC69		LA4170	"		1
IC4, 6, 8, 15, 21, 23		MSM4111RS	"		6
IC40, 56		TC4053BP	"		2
IC31, 37, 38, 54, 55		TC4066BP	"		5
IC1		TC4069UBP	"		1
IC18, 29, 30		TC4094BP	"		3
Q22		2SA7988G	Transistor		1
Q8		2SC1583	"		1
Q6, 21, 32, 35, 37, 38, 40		2SA929(F)	"		7
Q1–5,10–19,24–28,31,33 34,36,39		2SC1570NP(F)	"		25
Q7, 20, 29, 30, 41–43		2SK163(M-N)	FET		7
D1–58		1S1555	Diode	20 kΩ Semi-fixed	58
R344		QVP8A0B-024	V. Resistor	20 kΩ "	1
R96, 354, 511		QVP8A0B-054	"	50 kΩ "	3
R121, 526, 527, 528, 557		QVP8A0B-025	"	200 kΩ "	5
R34, 80, 138, 524, 525, 547 548		QRZ0052–100	Fusible Resistor		7
CN58, 59, 3		SS30644-003	Post Header		3
CN10, 26		SS30644-004	"		2
CN6, 15, 22		SS30644-005	"		3
CN16		SS30644-007	"		1
CN19		SS30644-008	"		1
CN21		SS30644-012	"		1
CN24		SS30662-005	R. Post Header		1
CN23		SS30662-006	"		1
CN25		SS30662-012	"		1
		QRD141J-	C. Resistor		551
		QET61EM	E. Capacitor		41
		QET61AM-	"		9
		QET61HM-	"		12
		QEN61EM-	"		21
		QEN61HM-	"		16
		QCF31HP-473	C. Capacitor		12
		QCS31HJ-1	"		82
		QFM31HJ-	M. Capacitor		67
Q35, 37		2SA684(R)	Transistor		2
Q2, 10, 34, 36, 44		2SC1384(R)	"		5
R511		QVP8A0B-014	V. Resistor		

■ GC BOARD Symbol No. 2 2

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK40-07	GC P.W.B. Ass'y		1
IC1		TC4094BP	IC		1
Q1, 2		2SC1570NP(F)	Transistor		2
D13–19		1S1555	Diode		7
CN61		SS30644-004	Post Header		1
CN60		-005	"		1
CN62		-006	"		1
		QRD141J-	C. Resistor		4

▪ CS BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK36-03	CL P.W.B. Ass'y		1
S1–20		SMV2138	Lever Switch	Pedal - Lower Electric Piano	20
R7–12, 14, 15		SMV2030	Slide Bolume	10 kΩ B	8
R13		SMV2032	〃	1 mΩ A, for portamento	1
CN35		SS30662-006	L. Post Header		1
CN08		SS3062-010	〃		1
		QRD141J-	C. Resistor		6
Q1–3		2SC1570NP(F)	Transistor		3
C1, 2		QET61EM-106	E. Capacitor		2
		SMK36-02	CC P.W.B. Ass'y		1
		SM1391	CC P.W.B.		1
IC3, 4		BA6251	IC		2
S41–56		SM40152	Tact Switch	Compu-orchestra SW	16
D1–40, 43–60		IS1555	Diode		58
D61–77		LR-1140YC	LED	Tremolo	4
		-1140VC		Grand Preset	3
		-1140MC		Stereo Effect	10
R32–51		QRD141J	C. Resistor		19
		SMK36-01	CR P.W.B. Ass'y		1
		SM1391	CR P.W.B.		1
IC2		TC40H138P	IC		1
IC1		BA6251	〃		1
S21–40		SMV2131	Lever Switch		20
R17, 18, 21–27		SMV2030	Slide Bolume	10 kΩ B	9
CN4, 32, 24		SS30662-005	L. Post Header		3
CN31		SS30662	〃		1
CN16		SS30662-007	〃		1
CN19		SS30662-008	〃		1
		QRD141J-	C. Resistor		26
Q4		2SC1570NP(F)	Transistor		1
D21–40		1S1555	Diode		20
C3, 4		QET61EM-106	E. Capacitor		2
		SMK36-04	DP P.W.B. Ass'y		1
		SM1391	DP P.W.B.		1
S57, 58		SM40152	Tact Switch	Draw-bar Preset SW	2
D43, 44		1S1555	Diode		2
D41, 42		LR-1140YC	LED		2
		QRD141J	C. Resistor		2
		SMK36-05	TV P.W.B. Ass'y		1
		SM1391	TV P.W.B.		1
R29, 30, 31		SMV2157	Slide Bolume	10 kB (S2018)	3
R28, 52		QRD141J-	C. Resistor		2

■ SY BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK37	SY P.W.B. Ass'y		1
IC9,10,14,16,17,20,23,24,25		NJM4558DD	IC		9
IC5, 27		BA6110	″		2
IC18, 22		LM8942	″		2
IC4		AN6914	″		1
IC1		TC5081AP	″		1
IC12		TC4011BP	″		1
IC13		TC4013BP	″		1
IC7		TC4049BP	″		1
IC11, 15, 21, 26		TC4066BP	″		4
IC6		TC4094BP	″		1
IC2, 3, 8, 19		TL082CP	″		4
Q41		2SA798G	Transistor		1
Q46		2SC828(R)	″		1
Q3, 6		2SA781	″		2
Q2		2SC1384(R)	″		1
Q8,18,22,29,44,47,49		2SA929(F)	″		7
Q1,4,5,7,9–17,19–21,24–28, 30, 31, 32–40, 45, 46, 48		2SC1570NP(F)	″		32
Q23, 42, 43		2SK163(M,N)	FET		3
D1–87		1S1555	Diode		82
R236		QVP8A0B-052	Volume	500 Ω Semi-fixed	1
R18		″ -014	″	10 kΩ ″	1
R21, 120, 214, 263		″ -054	″	50 kΩ ″	4
R8, 201		QRZ0052-220	Fusible Resistor		2
CN11		SS30644-003	Post Header		1
CN27		″ -004	″		1
CN19, 33		″ -005	″		2
CN32		″ -006	″		1
		QRD141J-	C. Resistor		308
		QCS31HJ-	C. Capacitor		11
C19		QCF31HP-473	″		1
		QFM31HJ-	″		31
C52, 54		QFN31HJ-154	M. Capacitor		2
		QET61HM-	E. Capacitor		16
		QET61EM-	″		7
		QET61AM-	″		10
		QEN61HM-	″		5
		QEN61EM-	″		1

■ EP BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK40-05	EP P.W.B. Ass'y		1
		SM4236	CdS		1
		SS30662-006	R. Post Header		
R128		QRD141J-105	C. Resistor		1

■ MA BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK40-01	MA P.W.B. Ass'y		1
IC11		STK082-105	IC	Power Amp.	1
IC12		STK465SA	〃		1
Q104		2SD330(E)	Transistor		1
D101–103		DBA40C-K15	Block Diode		3
R117–119		QRZ0052-100	F. Resistor		3
F1–6		E48965-002	Fuse Holder		12
		SMV2152	Heat Sink	for Regulator	5
CN36		SS30664-005	Post Header		1
CN23, 44		〃 -006	〃		2
CN05		〃 -011	〃		1
CN25, 33		〃 -012	〃		2
CN45		SM3490-008	PL Male Pin		1
CN54		〃 -010	〃		1
C126, 128, 129		QCF32HP-103	C. Capacitor		3
		QEV71HR-	E. Capacitor		5
		QEN71HM-	〃		2
R123		QEG039J-470	OMF Resistor		1
		QCS31HJ-	C. Capacitor		7
C131,133,135,137,139		QFM31HJ-104	M. Capacitor		5
C121–123		QMF32AK-473	〃		3
C103, 109, 115		QET61AM-107	E. Capacitor		3
C104, 105, 111–113		QET61HM-106	〃		5
C101, 106, 118		QEN61EM-475	NP E.Capacitor		3
		QRD141J-	C. Resistor		23
		LPSP3008Z	Assembly Screw		5
F1–3	⚠	QMF51S1-2R5	Fuse	for Model A.P	3
F4–6	⚠	〃 -2R0	〃	for Model A.P	3
F1-3	⚠	QMF51S1-2R5-BS	Fuse	for Model B.H.N.V	3
F4-6	⚠	QMF51S1-2R0-BS	Fuse	for Model B.H.N.V	3

■ AC BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK40-04-A	AC P.W.B. Ass'y		1
L1	⚠	SMV2087-002	SC Coil		1
F7	⚠	E48965-002	Fuse Holder		2
C143	⚠	QFZ9008-103-BS	OFT Capacitor		1
	⚠	〃 -475-BS	〃		1
		SS30810-003	P.C.B. Holder		1
		SM3490-003	PL Male Pin		2
		〃 -008	〃		2
	⚠	QMF51S1-4R0	Fuse	for Model A.P	1
	⚠	QMF51A2-2R0-BS	Fuse	for Model B.H.N.V	1

■ RI BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK40-08	RI P.W.B. Ass'y		1
IC13, 14		UPC7815H	IC		2
IC16, 17		UPC7805H	〃		2
IC15		UPC7915H	〃		1
		SMV2152	Heat Sink		5
		SS30644-004	Post Header		1
		〃 -008	〃		1
		〃 -010	〃		1
		QFM31HJ-104	M. Capacitor		5

■ AX BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK37-03	AX P.W.B. Ass'y		1
		NJM4558DD	IC		1
		QMS6303-011	Jack Ass'y	EXP. IN	1
		QMS6312-013	″	Headphone, Mic.	2
		SMV2153	″	AUX IN/OUT	1
R447		QVG4A2A-014V	Volume	for Mic.	1
CN21		SS30644-012	Post Header		1
		QRD141J-	C. Resistor		22
		QCS31HJ-	C. Capacitor		4
C124, 125		QET61EM-106	E. Capacitor		2
C111, 114, 115, 118		QET61HM-105	″		4
C119–123		QEN61HM-105	NP E. Capacitor		5

■ AA BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK40-03	AA P.W.B. Ass'y		1
IC3		TC40H138P	IC		1
D1–10		1S1555	Diode		10
D11		SLR-34VR40	LED	Red, for Record	1
D12		SLR-34MG40	″	Green, for Replay	1
SW3–10		SM40294-016	Push Switch (8-way)	Fascinating & Compucorder	1
SW1, 2		″ -018	″ (2-way)	Magic Foot	1
R31–34		SMV2030	Slide Volume	Arpegio, Guitar, Piano, Brass	4
CN11		SS30662-004	R. Post Header		1
CN27		″ -008	″		1
CN34, 17		″ -010	″		2
CN02		SS31053-016	Card Fit Connector		1
C13		GFC31HP-473	C. Capacitor		1
C12, 14		QET61AM-107	E. Capacitor		2

■ DD BOARD

Symbol No.		Parts No.	Parts Name	Description	Q'ty
		SMK40-02	DB P.W.B. Ass'y		1
IC1, 2		NJM4558DD	IC		2
R19,20,22,23,24,25,27,28,30		SMV2018-WHT	Draw-bar Volume	for 16', 8', 4', 2'	9
R21, 26, 29		″ -LYL	″	for 5-1/3', 2-2/3', Bass Guitar	3
		SM3975	Draw-bar Holder		1
CN7		SS30662-008	R. Post Header		1
CN9		″ -010	″		1
R36, 37		QRZ0052-220	Fusible Resistor		2
		QRD141J-	C. Resistor		18
		QCS31HJ-	C. Capacitor		6
C3		QEN61EM-475	NP Capacitor		1
C6, 9		QEN61HM-105	″		2
C10, 11		QET61EM-107	E. Capacitor		2

■ RS BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK37-02	RS P.W.B. Ass'y		1
IC51		TC40H138P	IC		1
IC53, 55		TC4049BP	″		2
IC60		NJM4558DD	″		1
IC52, 54		BA6251	″		2
Q101–103		DTA114N	Transistor	Resistance Transistor	3
		LB203YB	LED (7-segment)	Tempo Display	1
		SM3677-006	Cushion	for LED	
D135		LR-1140YC	LED Ass'y	Synchro. Start	1
D131		SLR-54VR3F	LED	Red, Beat Conductor	1
D132–134		SLR-54MG3F	″	Green, ″	3
D101–130		1S1555	Diode		30
RA101		EXB-P84331K	Resistor Array		1
R432		SMV2146	V. Resistor	Rhythm Volume	1
R24		SMV2139	Digital Switch (Tempo Volume)	32-step	1
		SM40294-015	Push Switch		1
		″ -017	″		1
		SM40152	Tact Switch		2
		SS30662-010	L. Post Header		1
		SS43181-042	Flex. Jumper		1
		″ -122	″		1
		QRD141J-	C. Resistor		19
		QCF31HP-	C. Capacitor		
		QET61AM-	E. Capacitor		

■ PC BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK37-04	PC P.W.B. Ass'y		1
		SMV2145	Volume	Pitch & Tremolo Speed	4

■ MKM BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		SMK25	Manual Key P.C.B. Ass'y		1
SW1–49		SMV2164	Key Switch	Rubber Switch	49
D1–49		1S1555	Diode		49
		SS31053-016	Card Fit Connector		1
		SS31055-16152	Card Cord		1

■ PK BOARD

Symbol No.	⚠	Parts No.	Parts Name	Description	Q'ty
		OLSM1161	PK-1 Ass'y		1
		PU44690	Foot Switch		13
D01–D13		1S1555	Diode		13
CN17		SS30662-010	Connector		1

PACKING

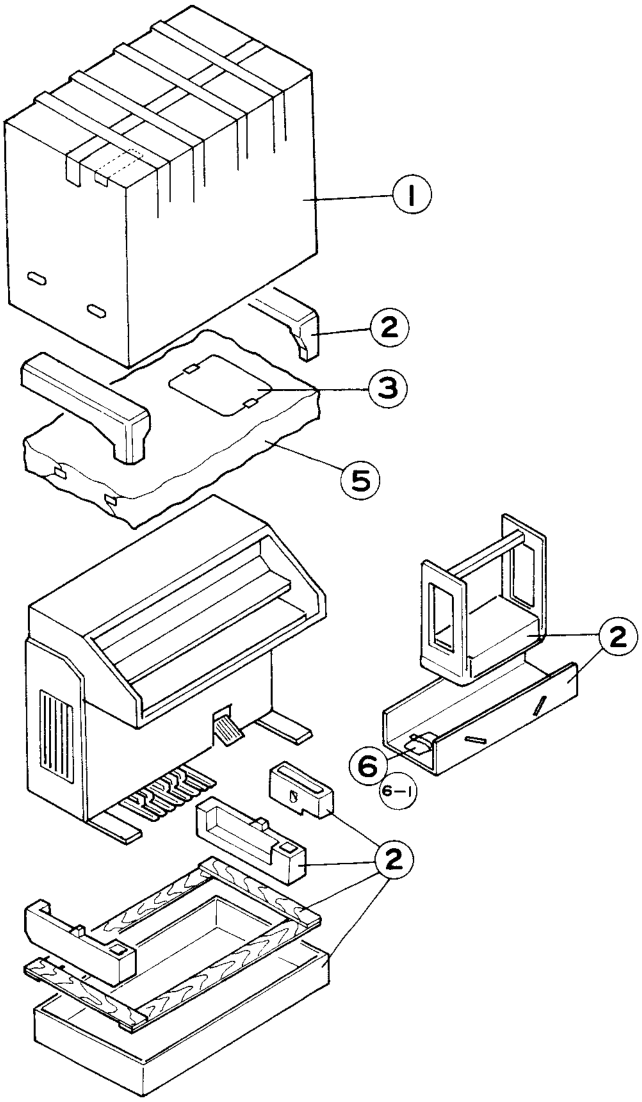
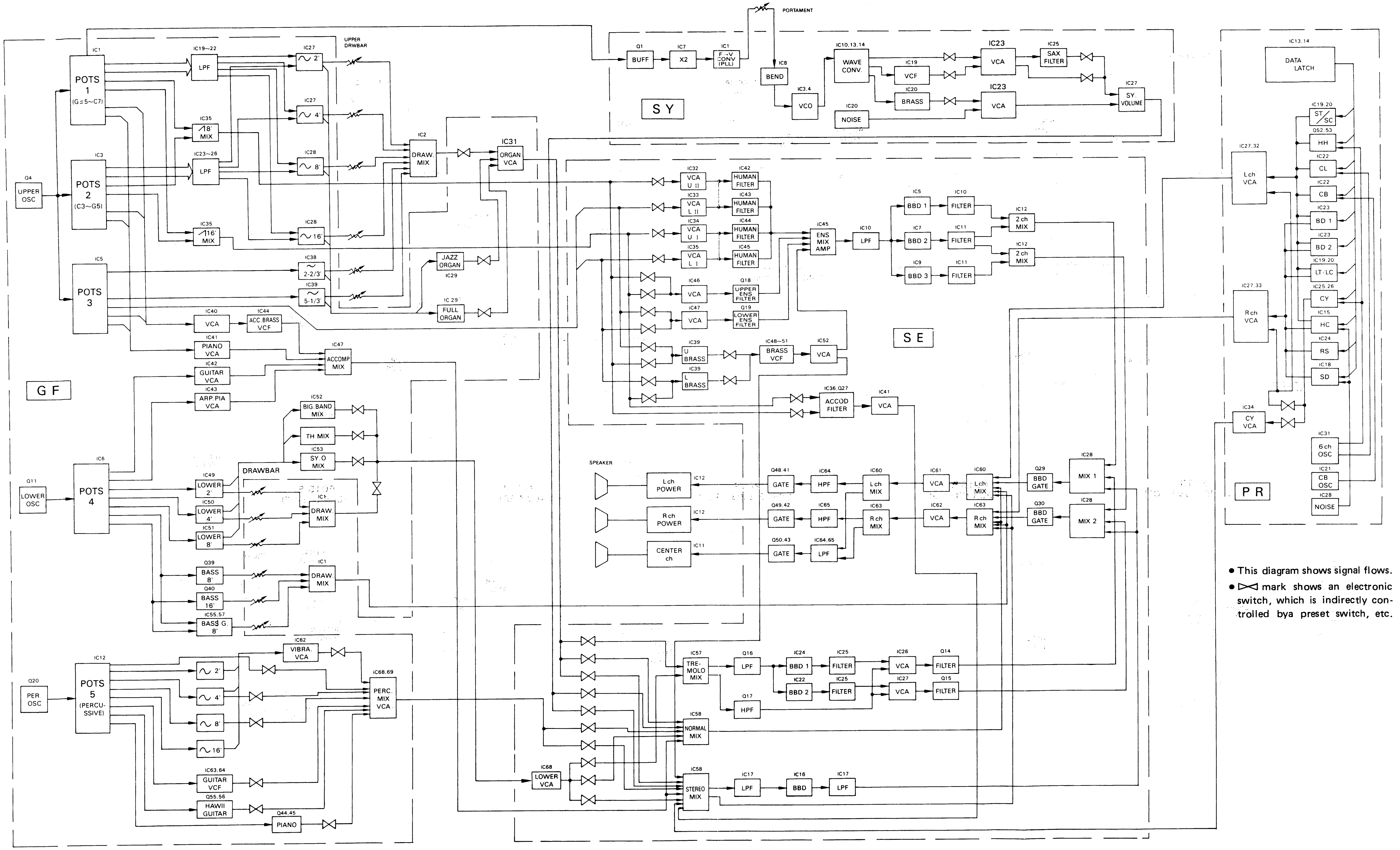


Fig. 21

PACKING PARTS & ACCESSORIES

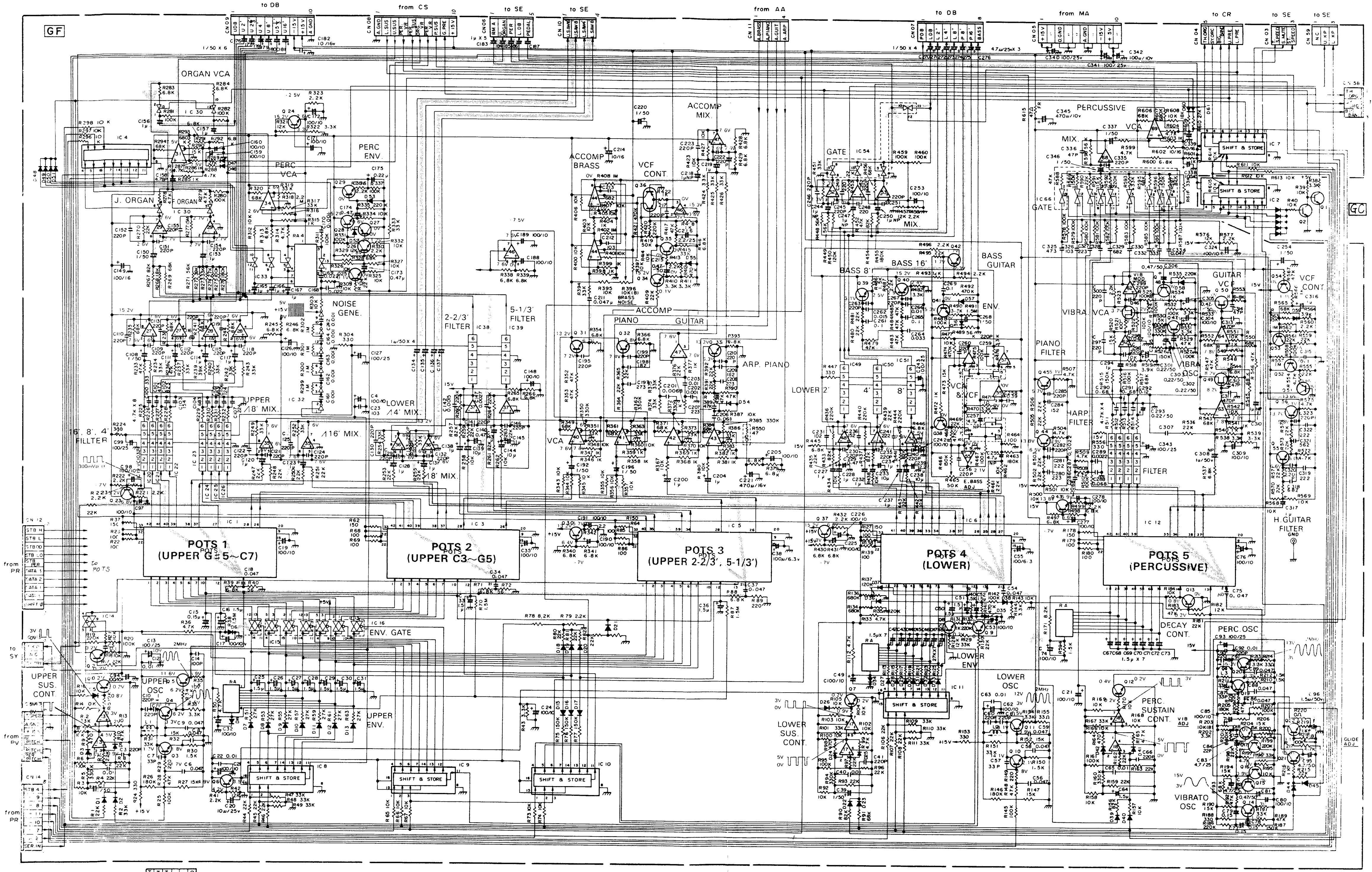
No.	⚠	Parts No.	Parts Name	Description	Q'ty
1		PK-E0-M880	Carton	SMP2097-PK	1
2		NZ-E0-M880	Supporter	SMP2097-NZ	1
3		QPGA025-03505	Poly Bag		1
″		SMA1086	Instructions		1
5		PKSM100-5	Sheet		1
6		QPGA012-03005	Poly Bag	for Power Cord	1
6-1		QMP9020-101-BS	Power Cord	for Model V, B	1
		QMP4238-200	″	for Model N, A	1
		QMP24D8-200	″	for Model H	1
		SCV0416-2M5	″	for Model A	1

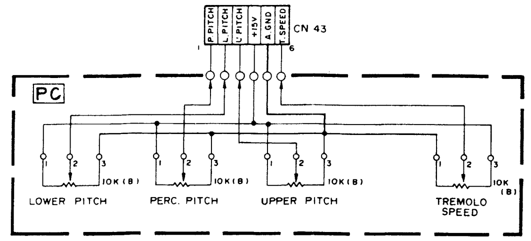
BLOCK DIAGRAM


PORTAMENT
UPPER DRWBAR
POTS 1 (G#5~C7)
POTS 2 (C3~G5)
POTS 3
POTS 4
POTS 5 (PERCUSSIVE)
UPPER OSC
LOWER OSC
PER OSC
LPF
2'
4'
8'
16'
18' MIX
16' MIX
2-2/3'
5-1/3'
DRAW. MIX
ORGAN VCA
JAZZ ORGAN
FULL ORGAN
VCA
ACC. BRASS VCF
PIANO VCA
GUITAR VCA
ARP. PIA VCA
ACCOMP MIX
BIG BAND MIX
TH MIX
SY. O MIX
DRAWBAR
LOWER 2'
LOWER 4'
LOWER 8'
BASS 8'
BASS 16'
BASS G. 8'
VIBRA. VCA
PERC. MIX VCA
GUITAR VCF
HAWII GUITAR
PIANO
G F
BUFF
X2
F→V CONV (PLL)
BEND
VCO
WAVE CONV.
VCF
BRASS
NOISE
SAX FILTER
SY VOLUME
S Y
VCA U II
VCA L II
VCA U I
VCA L I
HUMAN FILTER
UPPER ENS FILTER
LOWER ENS FILTER
ENS MIX AMP
BBD 1
BBD 2
BBD 3
FILTER
2 ch MIX
U BRASS
L BRASS
BRASS VCF
ACCOD FILTER
S E
SPEAKER
L ch POWER
R ch POWER
CENTER ch
GATE
HPF
L ch MIX
R ch MIX
BBD GATE
MIX 1
MIX 2
TRE-MOLO MIX
NORMAL MIX
STEREO MIX
BBD
LOWER VCA
DATA LATCH
ST/SC
HH
CL
CB
BD 1
BD 2
LT/LC
CY
HC
RS
SD
L ch VCA
R ch VCA
CY VCA
6 ch OSC
CB OSC
P R

- This diagram shows signal flows.
- ⋈ mark shows an electronic switch, which is indirectly controlled bya preset switch, etc.

GF BOARD (GENERATOR & FILTER) SCHEMATIC DIAGRAM

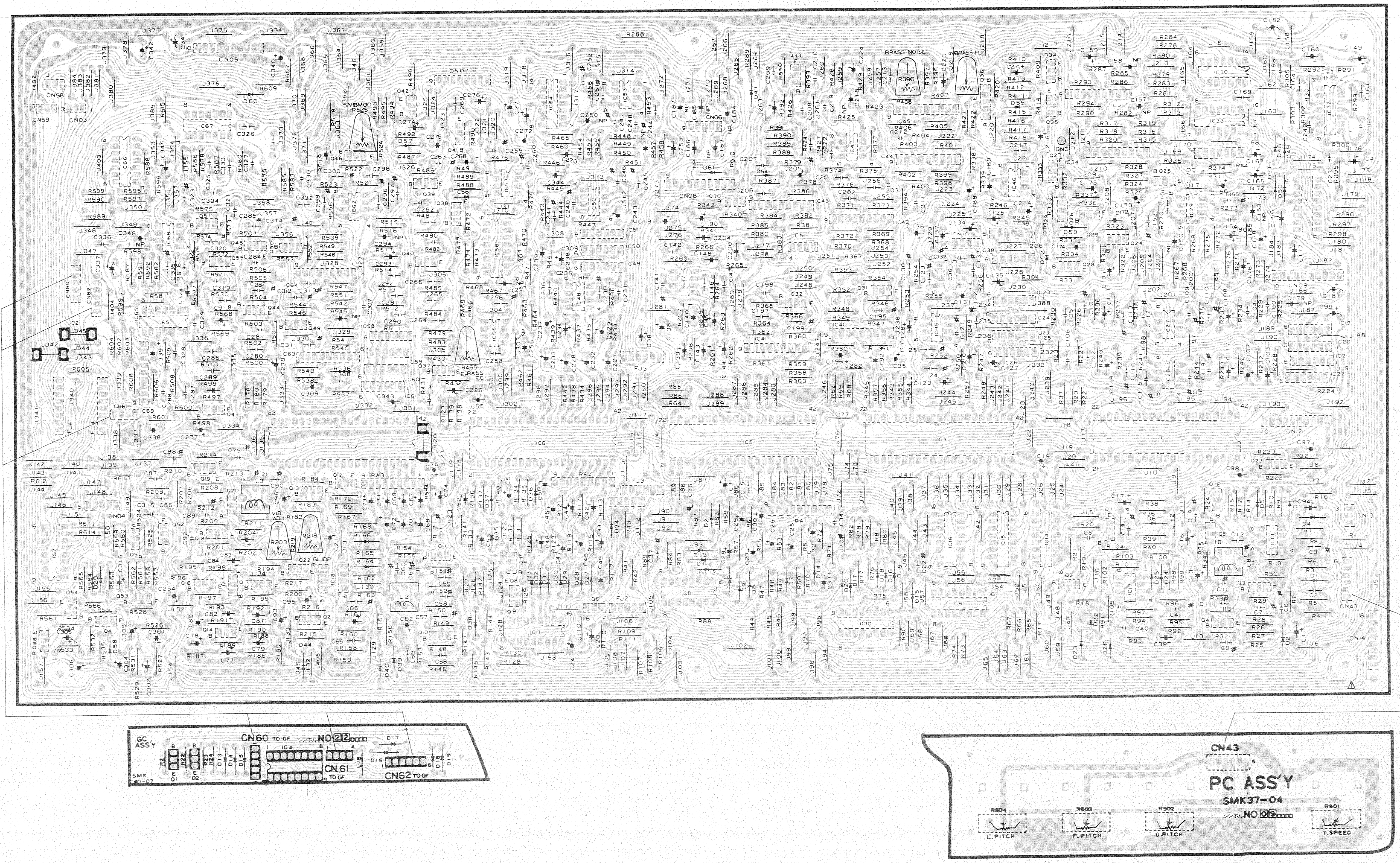

GF
GC
to DB
from CS
to SE
from AA
from MA
to CR
ORGAN VCA
J. ORGAN
PERC ENV
PERC VCA
NOISE GENE.
2-2/3' FILTER
5-1/3' FILTER
UPPER 8' MIX
LOWER 4' MIX
16' MIX
8' MIX
16', 8', 4' FILLTER
ACCOMP MIX
ACCOMP BRASS
VCF CONT
ACCOMP
PIANO
GUITAR
ARP. PIANO
VCA
GATE
MIX
BASS 8'
BASS 16'
BASS GUITAR
ENV
VCA & VCF
LOWER 2'
PERCUSSIVE
GATE L
SHIFT & STORE
GUITAR VCF
VCF CONT
VIBRA VCA
VIBRA OSC
PIANO FILTER
HARP FILTER
FILTER
H.GUITAR FILTER
POTS 1 (UPPER G-5~C7)
POTS 2 (UPPER C3~G5)
POTS 3 (UPPER 2-2/3', 5-1/3')
POTS 4 (LOWER)
POTS 5 (PERCUSSIVE)
ENV. GATE
UPPER SUS. CONT
UPPER OSC
UPPER ENV.
LOWER ENV
LOWER OSC
LOWER SUS CONT
DECAY CONT.
PERC OSC
PERC SUSTAIN CONT
VIBRATO OSC
GLIDE ADJ
from PR
to SY
from PV

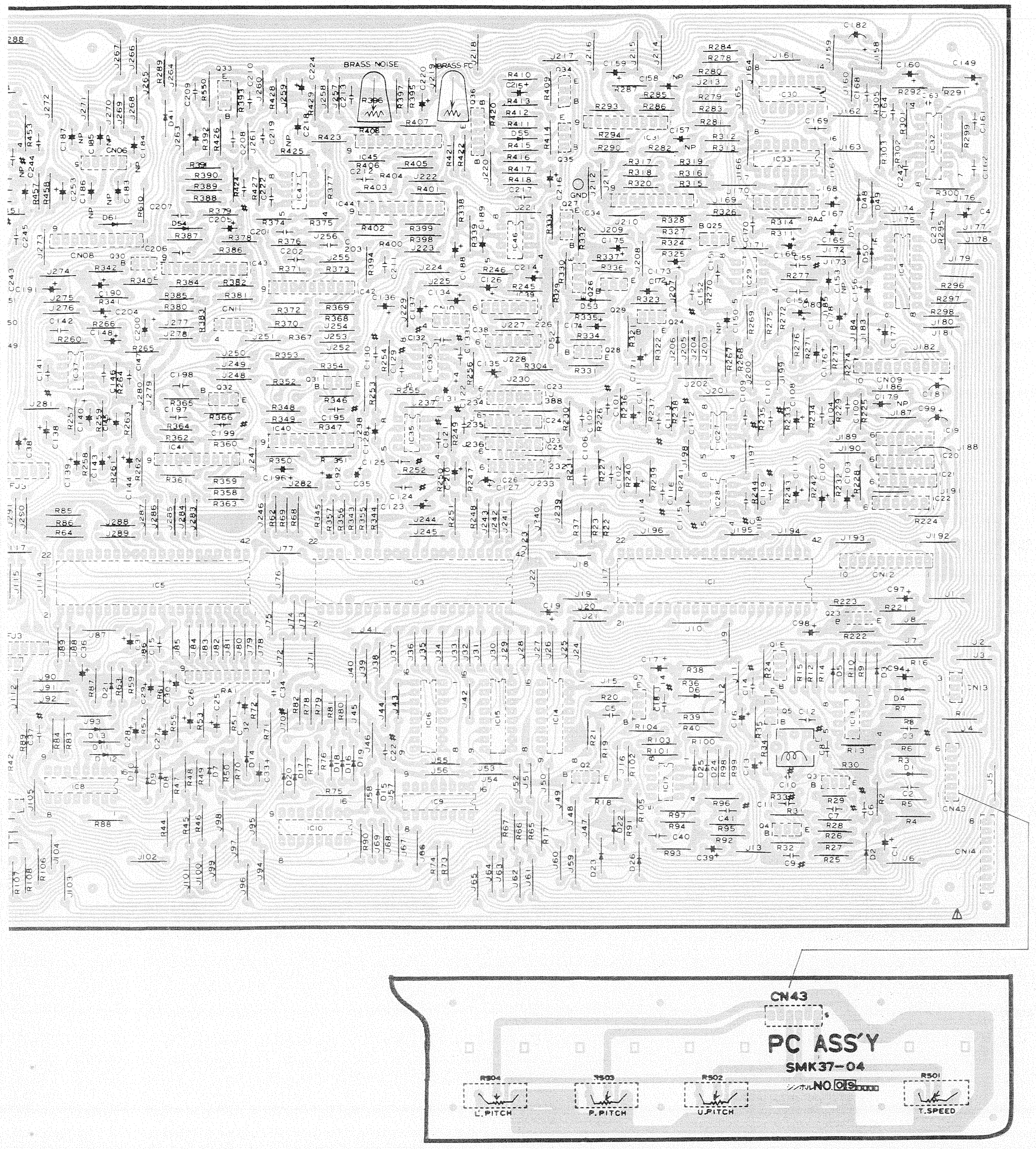

CN 43
P PITCH
U PITCH
L PITCH
+15V
A.GND
T.SPEED
PC
10K (B)
LOWER PITCH
PERC. PITCH
UPPER PITCH
TREMOLO SPEED

SEMICONDUCTORS:

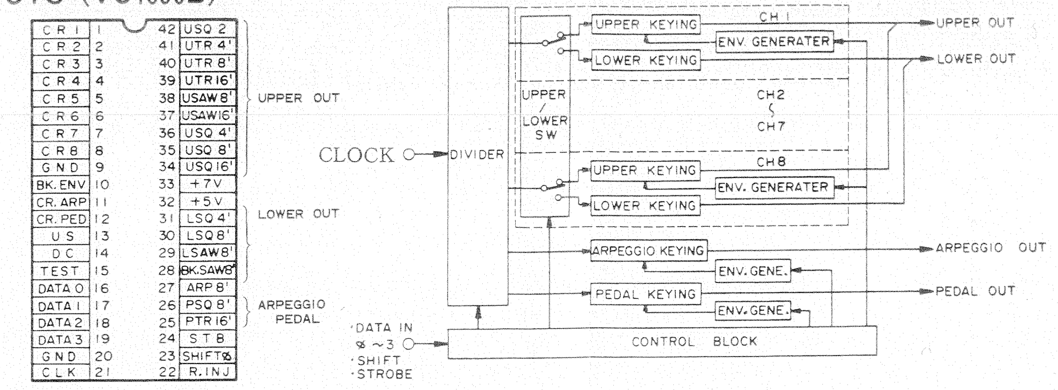
IC1, 3, 5, 6, 12	VC4050B	IC24	VC1032-08	IC56	LM8942	D1—63	1S1555
IC2, 4, 7—11	TC4094BP	IC25	VC1032-07	Op-amp.	NJM4558DD		
IC13, 17, 18	AN6914	IC26	VC1032-06	Q3—5, 10, 11,			
IC14—16	TC4053BP	IC30,33,54,		19, 20	2SC828(R)		
IC19, 58	VC1032-05	65,66,67	TC4066BP	Q13, 27, 51	2SA929(F)		
IC20, 49, 59	VC1032-04	IC31,34,40—45,		Q36	2SA798G		
IC21, 50, 60	VC1032-03	63,64,69	BA6110	Q46	2SK30A(Y)		
IC22, 51, 61	VC1032-02	IC32	TC4069UBP	Q49, 50	2SK163(M,N)		
IC23, 29	VC1032-09	IC38	VC1032-10	Other Transistors: 2SC1570NP(F)			

GF CIRCUIT BOARD


BRASS NOISE
BRASS FC
VIB MOD
VIB ADJ
GLIDE
E.BASS
GND
CN60 TO GF
CN61 TO GF
CN62 TO GF
GC ASS'Y
SMK 40-07
NO 212
CN43
PC ASS'Y
SMK37-04
NO 09
R504
R503
R502
R501
L.PITCH
P.PITCH
U.PITCH
T.SPEED


BRASS NOISE
BRASS
CN43
PC ASS'Y
SMK37-04
NO
R504
R503
R502
R501
L.PITCH
P.PITCH
U.PITCH
T.SPEED

POTS (VC4050B)

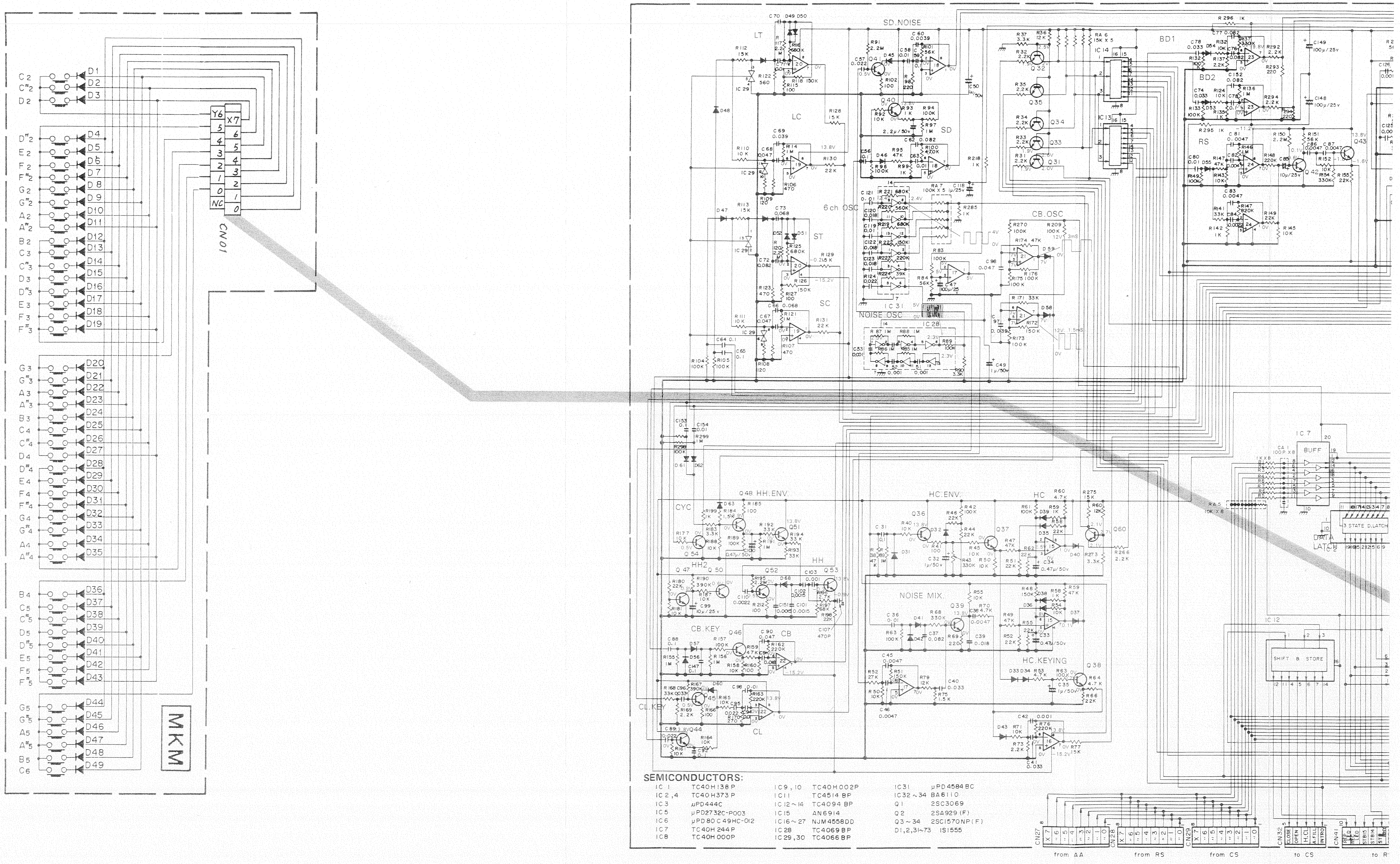

CR1 1
CR2 2
CR3 3
CR4 4
CR5 5
CR6 6
CR7 7
CR8 8
GND 9
BK.ENV 10
CR.ARP 11
CR.PED 12
US 13
DC 14
TEST 15
DATA 0 16
DATA 1 17
DATA 2 18
DATA 3 19
GND 20
CLK 21
42 USQ 2'
41 UTR 4'
40 UTR 8'
39 UTR16'
38 USAW8'
37 USAW16'
36 USQ 4'
35 USQ 8'
34 USQ16'
33 +7V
32 +5V
31 LSQ4'
30 LSQ8'
29 LSAW8'
28 BK.SAW8'
27 ARP 8'
26 PSQ 8'
25 PTR16'
24 STB
23 SHIFTØ
22 R.INJ
UPPER OUT
LOWER OUT
ARPEGGIO
PEDAL
CLOCK
DIVIDER
UPPER / LOWER SW
UPPER KEYING
LOWER KEYING
ENV. GENERATER
CH 1
CH2 ~ CH7
CH8
ARPEGGIO KEYING
PEDAL KEYING
ENV. GENE.
DATA IN Ø~3
SHIFT
STROBE
CONTROL BLOCK
UPPER OUT
LOWER OUT
ARPEGGIO OUT
PEDAL OUT

POTS INPUT/OUTPUT

PIN		IC 1	IC 3	IC 5	IC 6	IC 7
1	CR1	UPPER ENVELOPE	Same as Left	UPPER ENVELOPE (2-2/3', 5-1/3')	LOWER ENVELOPE	PERCUSSIVE ENVELOPE
2	CR2					
3	CR3					
4	CR4					
5	CR5					
6	CR6					
7	CR7					
8	CR8	NC	NC	NC	NC	NC
9	GND					
10	BK, ENV	ACCOMP BRASS ENV 1	ACCOMP BRASS ENV 2	ACCOMP BRASS ENV 3	ACCOMP GUITAR ENV	NC
11	CR. ARP	NC	NC	NC	ARPEGGIO PIANO ENV	NC
12	CR. PED	ACCOMP PIANO ENV 1	ACCOMP PIANO ENV 2	ACCOMP PIANO ENV 3	PEDAL ENV	NC
13	US	NC	NC	UPPER SUSTAIN CON.	LOWER SUSTAIN CON	PERC SUSTAIN CON
14	DC	NC	NC	NC	NC	PERC DECAY CON
15	TEST					
16	DATAϕ	DATA IN	Same as Left	Same as Left	Same as Left	Same as Left
17	DATA1					
18	DATA2					
19	DATA3					
20	GND	UPPER SOUND IN	〃	〃	LOWER SOUND IN	PERCUSSIVE SOUND IN
21	CLK					

PIN		IC 1	IC 3	IC 5	IC 6	IC12
42	USQ 2'	UPPER OUT (G♯5~C7)	UPPER OUT (C3~G5)	NC	NC	PERCUSSIVE OUT
41	UTR 4'			UPPER 2-2/3'	LOWER 2'	
40	UTR 8'			〃 5-1/3'	〃 4'	
39	UTR16'			NC	〃 8'	
38	USAW 8'			NC	〃 SAW 4'	
37	USAW16'			NC	〃 SAW 8'	
36	USQ 4'	NC	NC	UPPER 2-2/3'	〃 2'	NC
35	USQ 8'	NC	NC	〃 5-1/3'	〃 4'	PERCUSSIVE OUT
34	USQ16'	NC	NC	NC	〃 8'	
33	+7V					
32	+5V					
31	LSQ 4'	NC	NC	NC	NC	NC
30	LSQ 8'	NC	NC	NC	NC	NC
29	LSAW 8'	NC	NC	NC	NC	NC
28	BK, SAW 8'	ACCOMP BRASS 1	ACCOMP BRASS 2	ACCOMP BRASS 3	ACCOMP GUITAR	NC
27	ARP 8'	SOLO-SYNTHE.	NC	NC	ARPEGGIO PIANO	NC
26	PSQ 8'	ACCOMP PIANO 1	ACCOMP PIANO 2	ACCOMP BRASS 3	BASS 8'	NC
25	PTR16'	NC	NC	NC	〃 16'	NC
24	STB	STB H	STB L	STB OD	STB LO	STB PER
23	SHIFTϕ					
22	R.INJ					

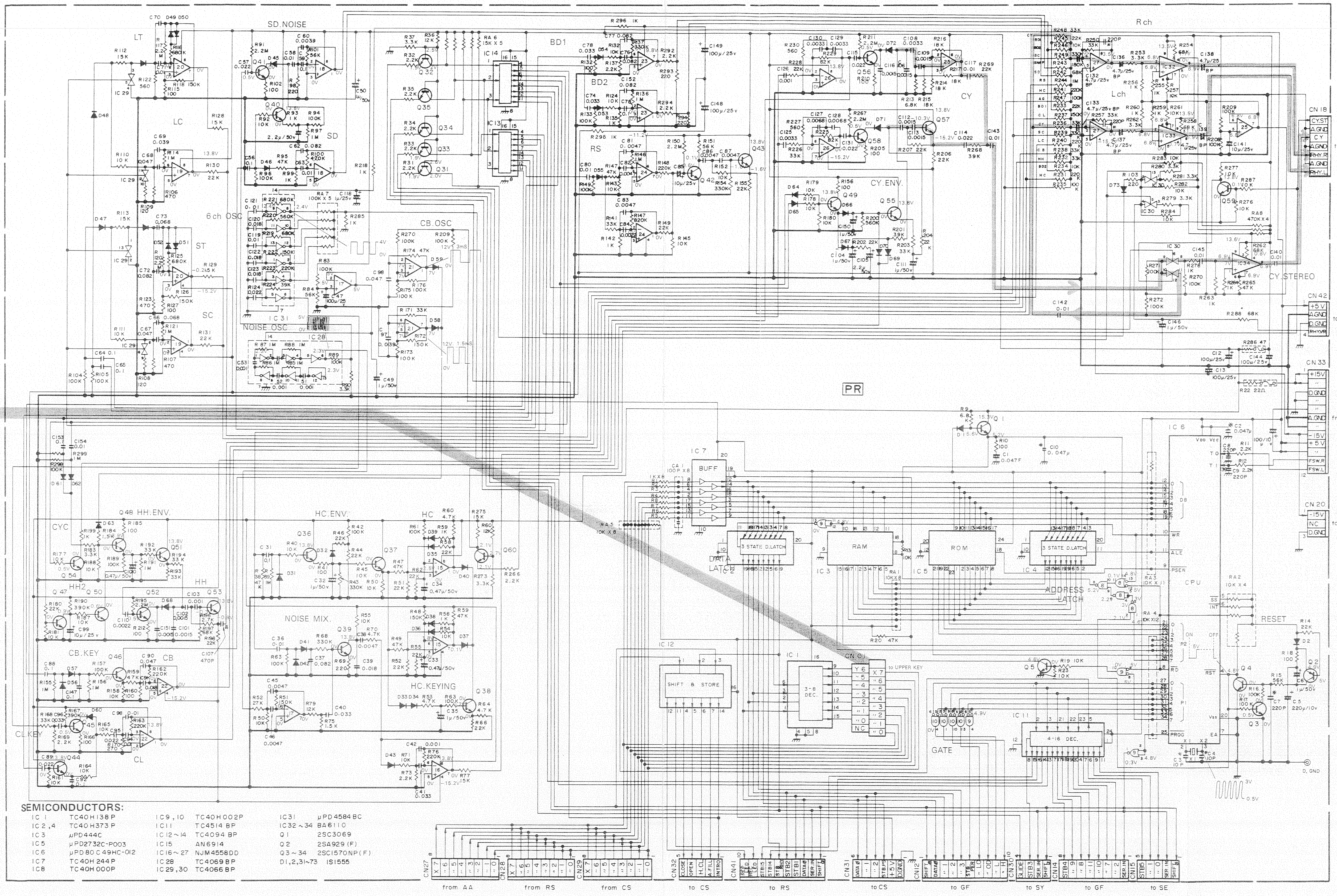
PR BOARD (PROCESSOR & RHYTHM) SCHEMATIC DIAGRAM


MKM
CN01
C2
C#2
D2
D#2
E2
F2
F#2
G2
G#2
A2
A#2
B2
C3
C#3
D3
D#3
E3
F3
F#3
G3
G#3
A3
A#3
B3
C4
C#4
D4
D#4
E4
F4
F#4
G4
G#4
A4
A#4
B4
C5
C#5
D5
D#5
E5
F5
F#5
G5
G#5
A5
A#5
B5
C6
LT
SD.NOISE
BD1
BD2
RS
LC
SD
6ch OSC
ST
SC
CB.OSC
NOISE OSC
IC 31
IC 28
IC 29
IC 13
IC 14
HH.ENV
CYC
HH2
HH
HC.ENV
HC
NOISE MIX.
HC.KEYING
CB.KEY
CB
CL.KEY
CL
IC 7
BUFF
3 STATE D.LATCH
DATA LATCH
IC 12
SHIFT & STORE
CN27
from AA
CN28
from RS
CN29
from CS
CN32
to CS
CN41
to R

SEMICONDUCTORS:

IC 1	TC40H138P	IC9, 10	TC40H002P	IC31	µPD4584BC
IC 2, 4	TC40H373P	IC11	TC4514BP	IC32～34	BA6110
IC 3	µPD444C	IC 12～14	TC4094BP	Q1	2SC3069
IC 5	µPD2732C-P003	IC15	AN6914	Q2	2SA929 (F)
IC 6	µPD80C49HC-012	IC16～27	NJM4558DD	Q3～34	2SC1570NP(F)
IC 7	TC40H244P	IC 28	TC4069BP	D1, 2, 31～73	1S1555
IC 8	TC40H000P	IC 29, 30	TC4066BP		

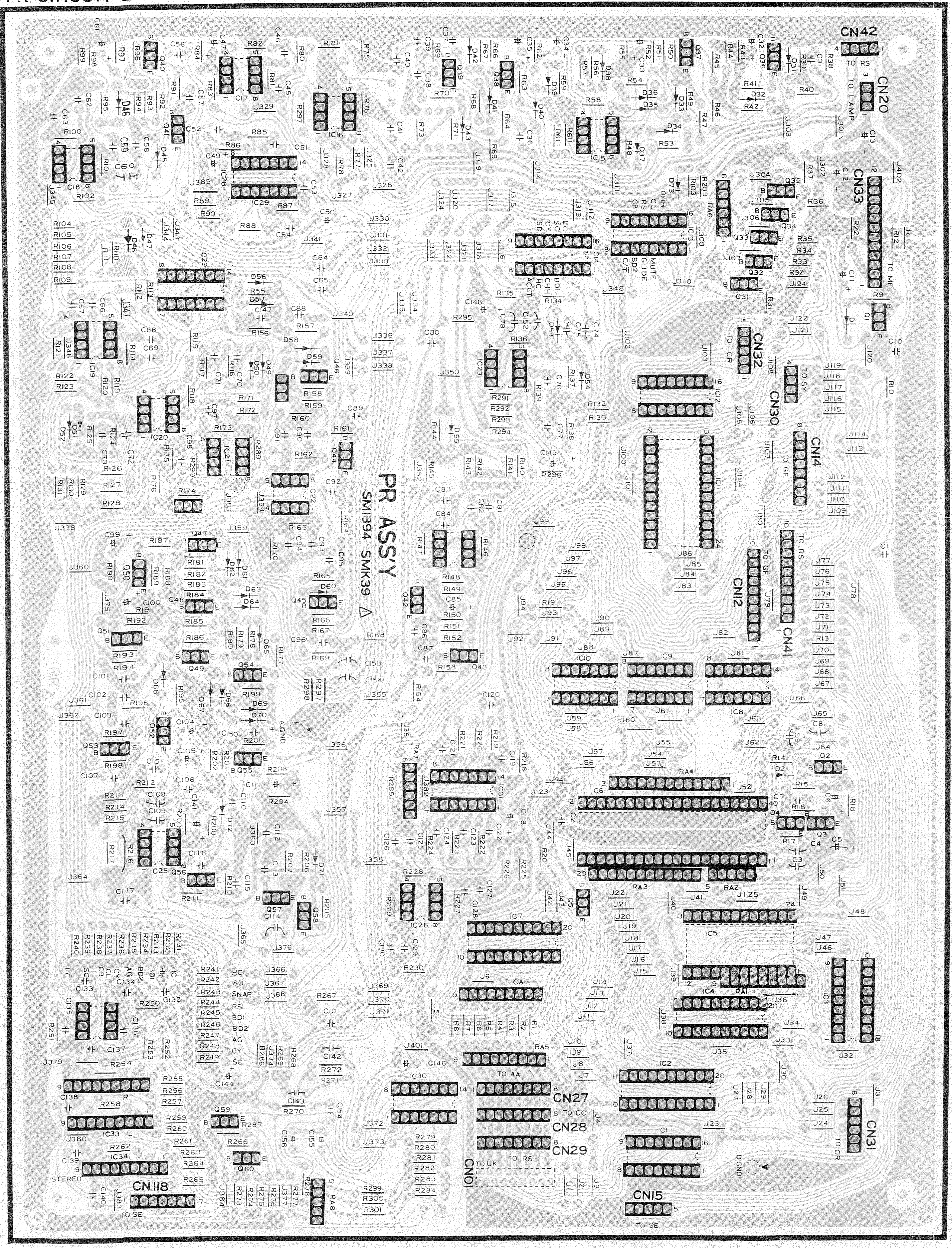
PR BOARD (PROCESSOR & RHYTHM) SCHEMATIC DIAGRAM


LT
LC
6ch OSC
ST
SC
SD.NOISE
SD
NOISE OSC
CB.OSC
BD1
BD2
RS
CY
CY.ENV.
Rch
Lch
CY.STEREO
CN18
CYST
A.GND
CY
RHY.R
RHY.L
to SE
CN42
+5V
RHYVR
to RS
CN33
+15V
D.GND
A.GND
-15V
FSW.R
FSW.L
from MA
CN20
NC
to Lamp
PR
IC6
CPU
RESET
IC7
BUFF
DATA LATCH
IC2
3 STATE D.LATCH
IC3
RAM
IC5
ROM
IC4
ADDRESS LATCH
IC12
SHIFT & STORE
IC1
3-8 DEC.
CN01
to UPPER KEY
IC11
4-16 DEC.
GATE
Q48 HH.ENV.
CYC
HH2
HH
CB.KEY
CB
CL.KEY
CL
HC.ENV.
HC
NOISE MIX.
HC.KEYING
CN27
from AA
CN28
from RS
CN29
from CS
CN32
to CS
CN41
to RS
CN31
to CS
CN12
to GF
CN30
to SY
CN14
to GF
CN15
to SE

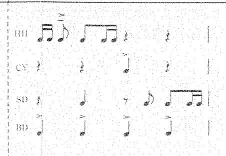
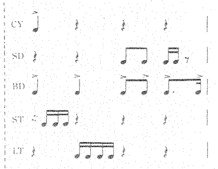
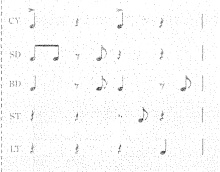
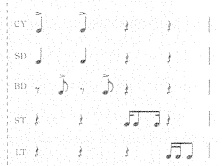
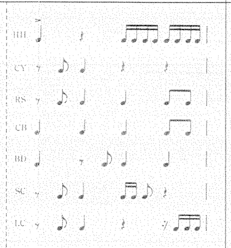
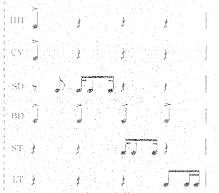
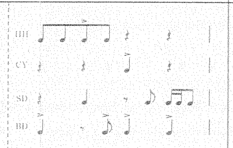
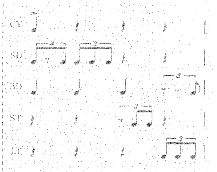
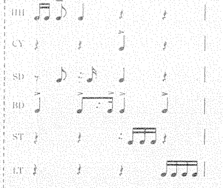
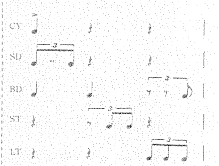
SEMICONDUCTORS:

IC 1	TC40H138P	IC9, 10	TC40H002P	IC31	μPD4584BC
IC2, 4	TC40H373P	IC11	TC4514BP	IC32～34	BA6110
IC3	μPD444C	IC12～14	TC4094BP	Q1	2SC3069
IC5	μPD2732C-P003	IC15	AN6914	Q2	2SA929 (F)
IC6	μPD80C49HC-012	IC16～27	NJM4558DD	Q3～34	2SC1570NP(F)
IC7	TC40H244P	IC28	TC4069BP	D1,2,31～73	1S1555
IC8	TC40H000P	IC29, 30	TC4066BP		

PR CIRCUIT BOARD

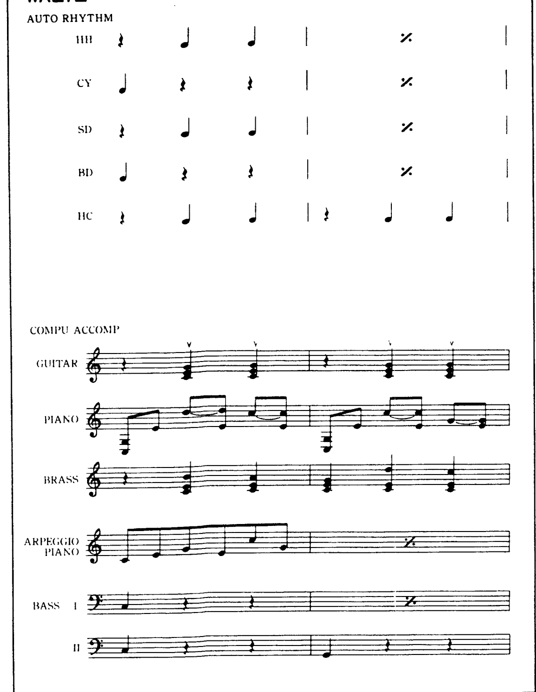

PR ASSY
SM1394 SMK39
CN42
CN20
CN33
CN32
CN30
CN14
CN12
CN41
CN27
CN28
CN29
CN31
CN01
CN15
CN118
TO RS
TO LAMP
TO ME
TO CR
TO SY
TO GF
TO AA
TO CC
TO RS
TO SE
TO UK
STEREO
D GND
AGND

INTRO. RHYTHM PATTERNS

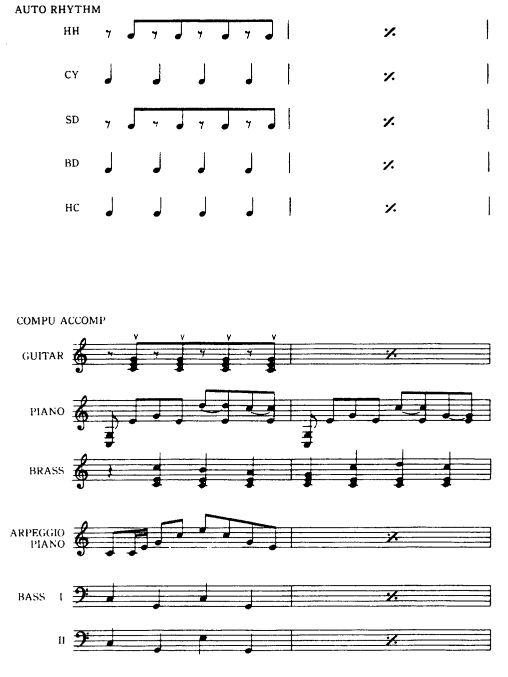
INTRO & BREAK	AUTO FILL IN		INTRO & BREAK	AUTO FILL IN	
	DISCO I DISCO II		SAMBA II ROCK II		
POLKA MARCH RHUMBA TANGO BOSSA-NOVA SOFT-ROCK	POLKA MARCH RHUMBA TANGO BOSSA-NOVA SOFT-ROCK		ROCK'N ROLL ROCK I		
SAMBA I SALSA-MAMBO	SAMBA I SALSA-MAMBO		DISCO I DISCO II		
	ROCK'N ROLL ROCK I		SLOW-ROCK SHUFFLE SWING DIXIE	SLOW-ROCK SHUFFLE SWING DIXIE	
	SAMBA II ROCK II		WALTZ JAZZ-WALTZ	WALTZ JAZZ-WALTZ	

RHYTHM PATTERNS

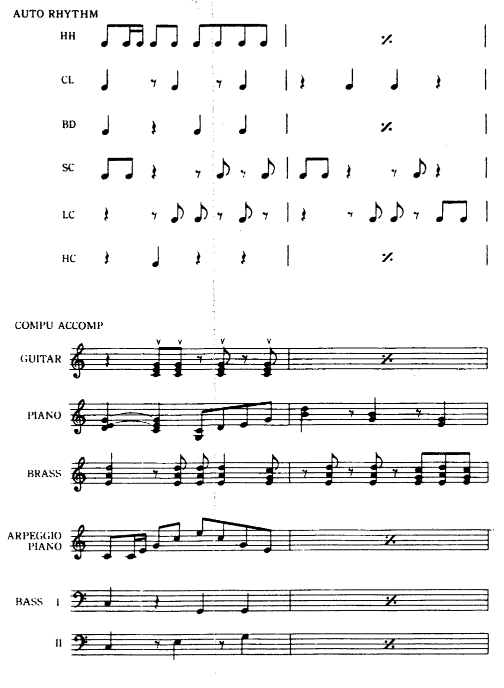
WALTZ


AUTO RHYTHM
HH
CY
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

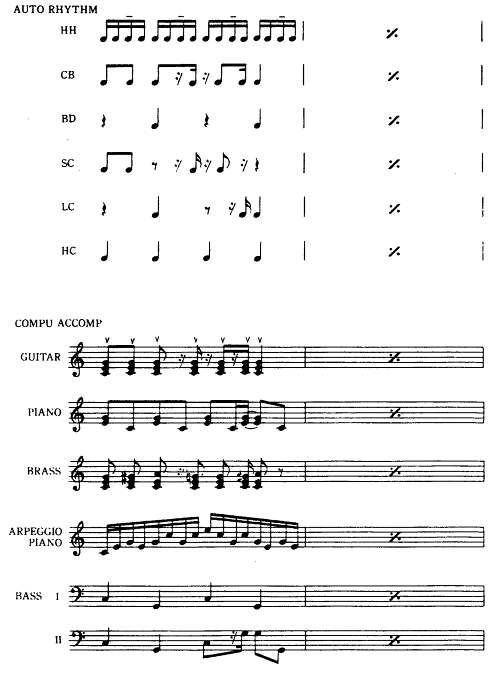
POLKA


AUTO RHYTHM
HH
CY
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

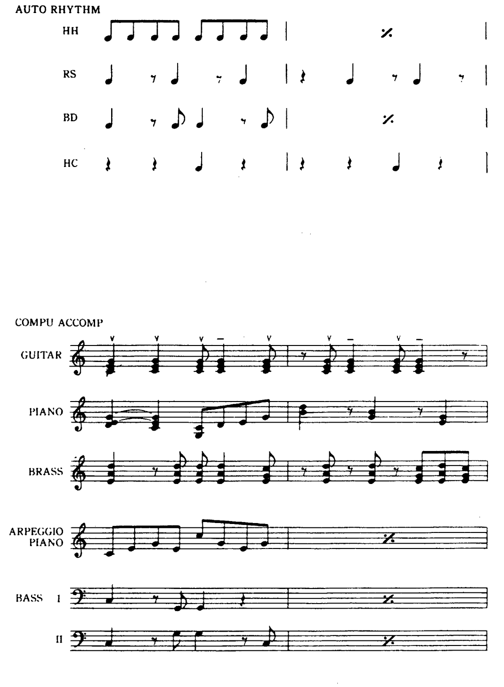
RHUMBA


AUTO RHYTHM
HH
CL
BD
SC
LC
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

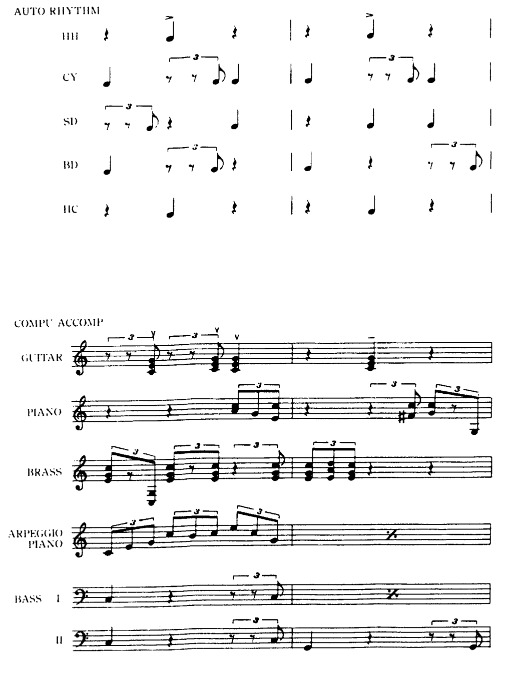
SAMBA I


AUTO RHYTHM
HH
CB
BD
SC
LC
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

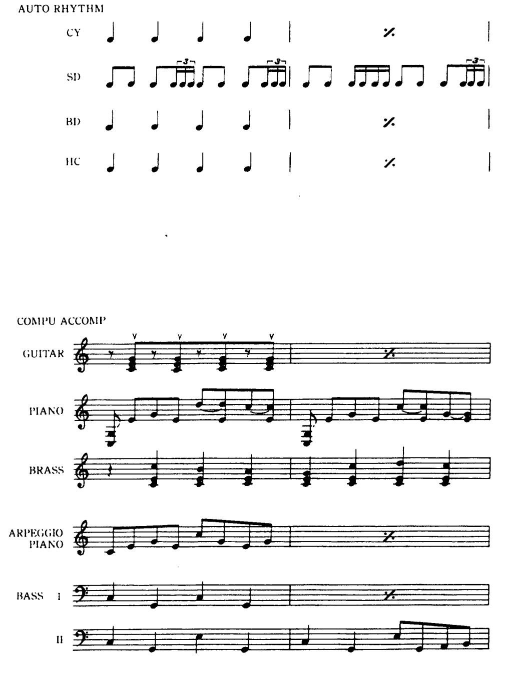
BOSSA-NOVA


AUTO RHYTHM
HH
RS
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

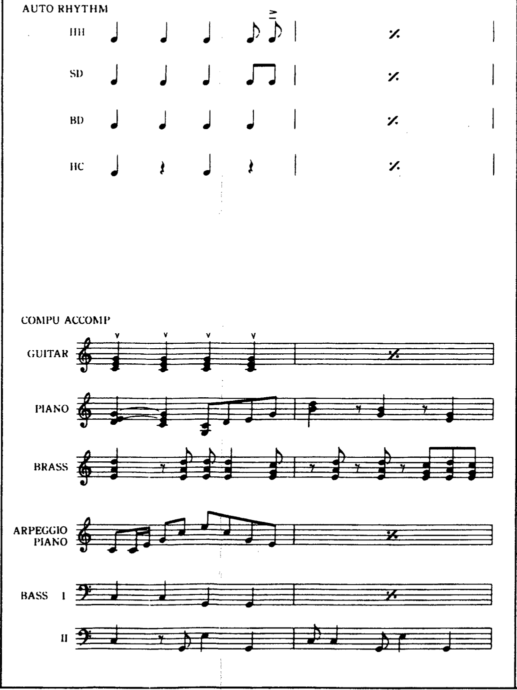
JAZZ-WALTZ


AUTO RHYTHM
HH
CY
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

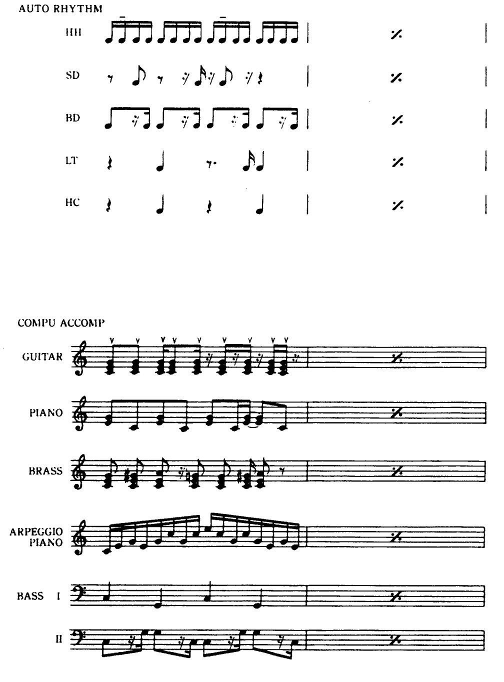
MARCH


AUTO RHYTHM
CY
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

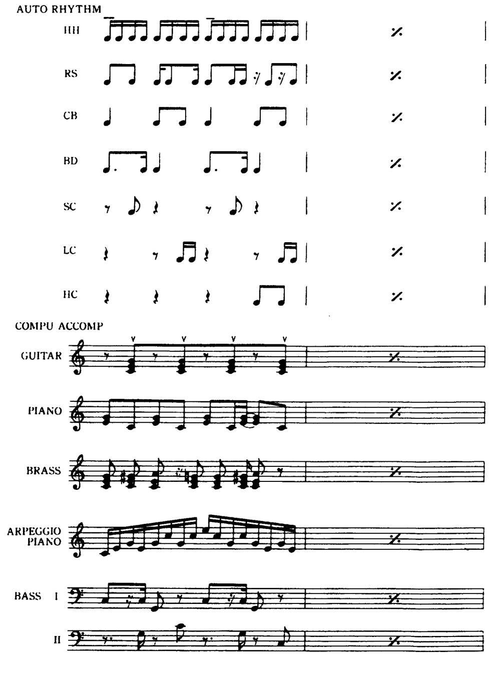
TANGO


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

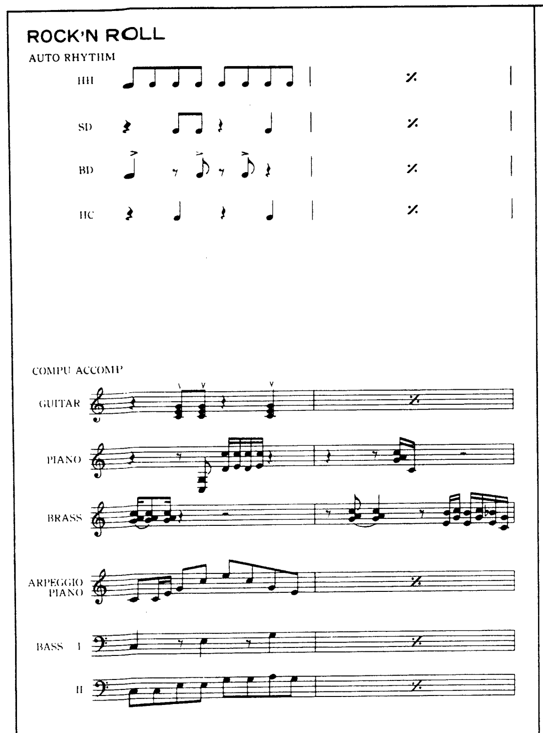
SAMBA II


AUTO RHYTHM
HH
SD
BD
LT
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

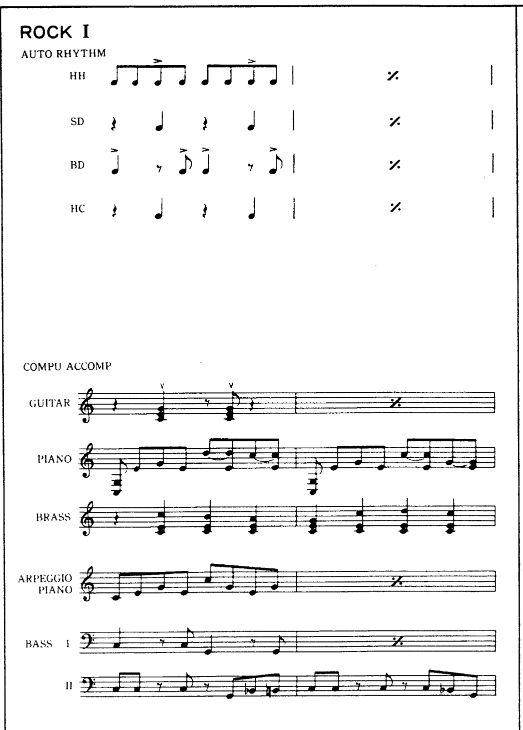
SALSA-MAMBO


AUTO RHYTHM
HH
RS
CB
BD
SC
LC
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

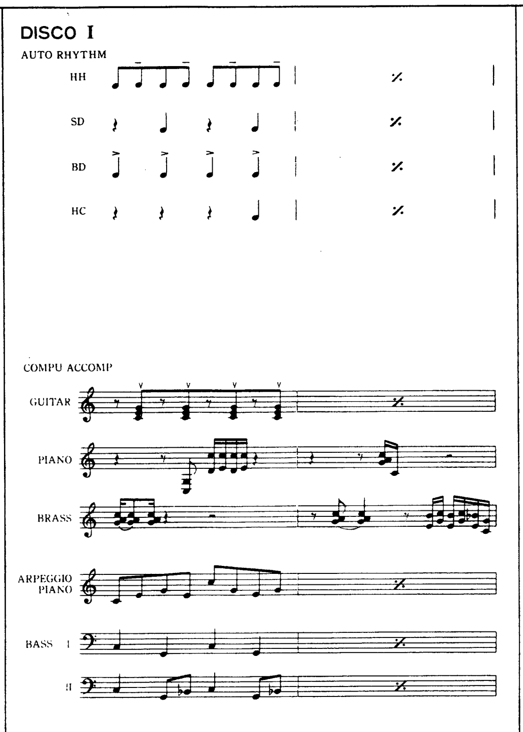
ROCK'N ROLL


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

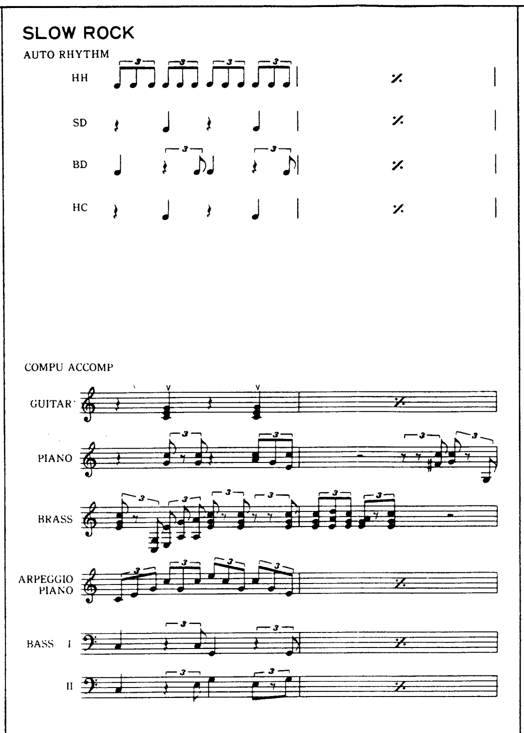
ROCK I


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

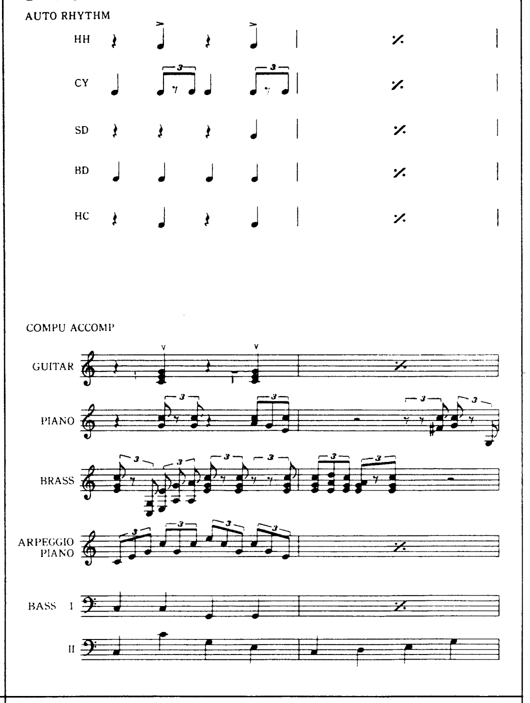
DISCO I


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

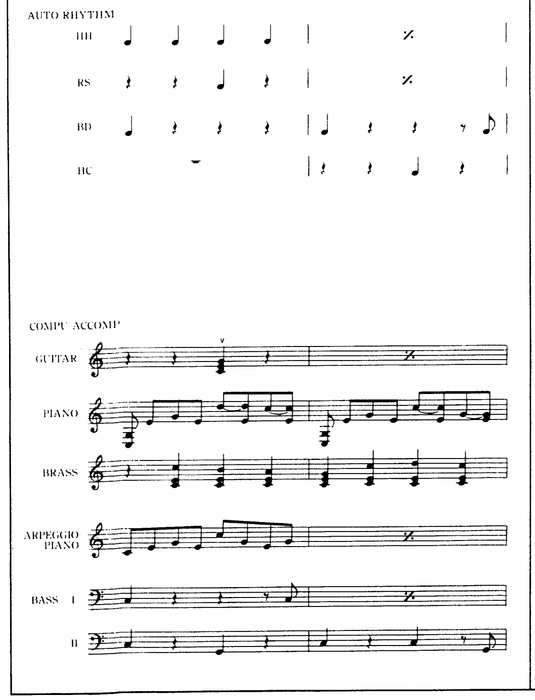
SLOW ROCK


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

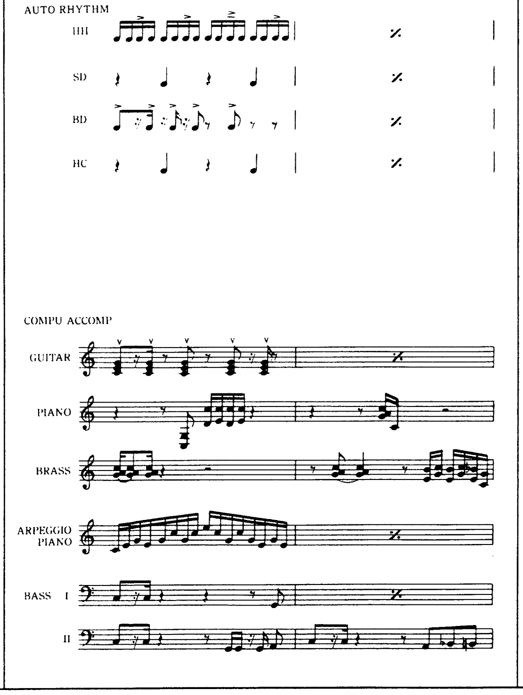
SWING


AUTO RHYTHM
HH
CY
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

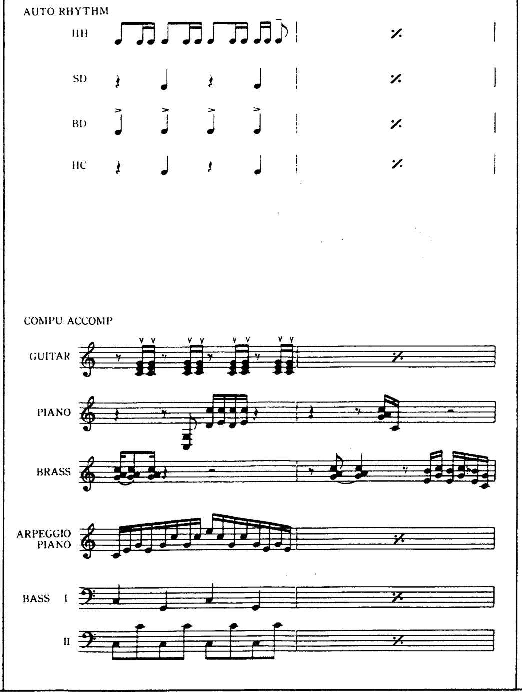
SOFT ROCK


AUTO RHYTHM
HH
RS
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

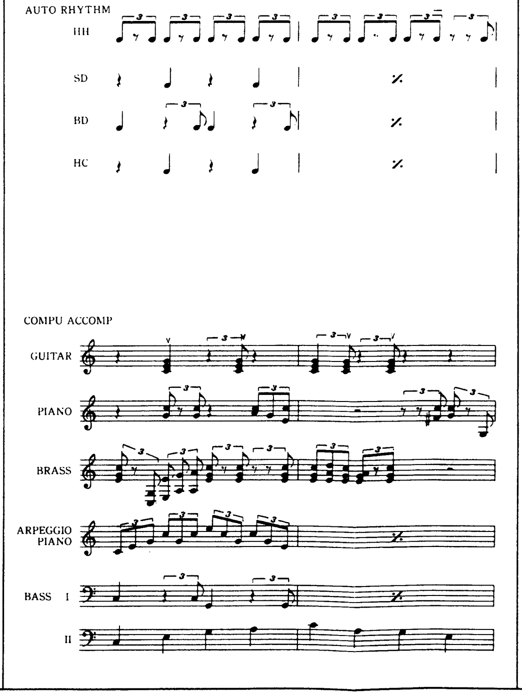
ROCK II


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

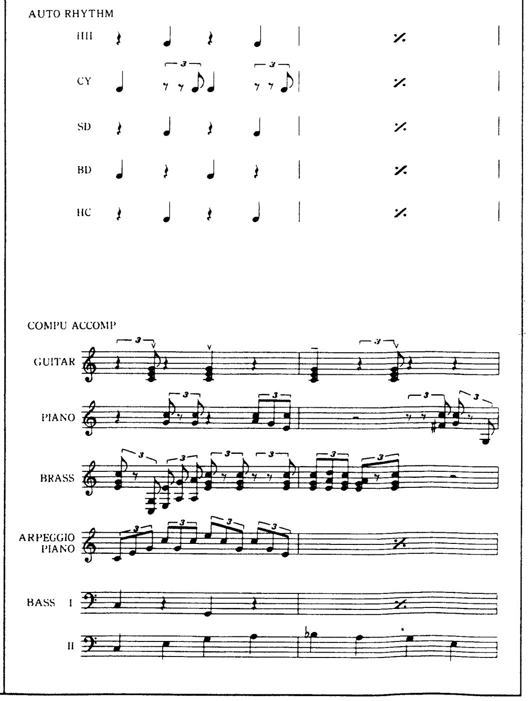
DISCO II


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

SHUFFLE


AUTO RHYTHM
HH
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

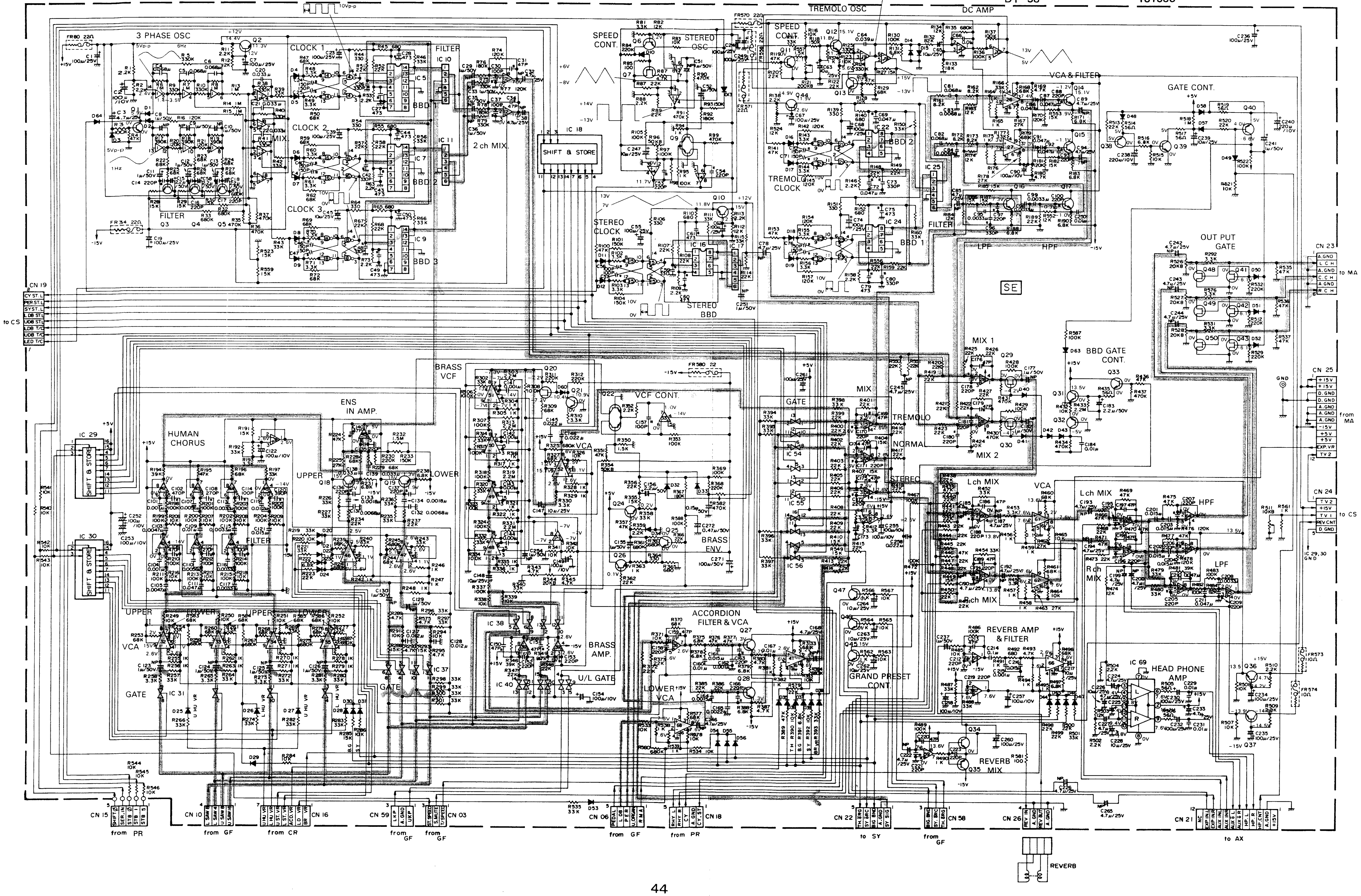
DIXIE


AUTO RHYTHM
HH
CY
SD
BD
HC
COMPU ACCOMP
GUITAR
PIANO
BRASS
ARPEGGIO PIANO
BASS I
II

SE BOARD (STEREO & ENSEMBLE) SCHEMATIC DIAGRAM

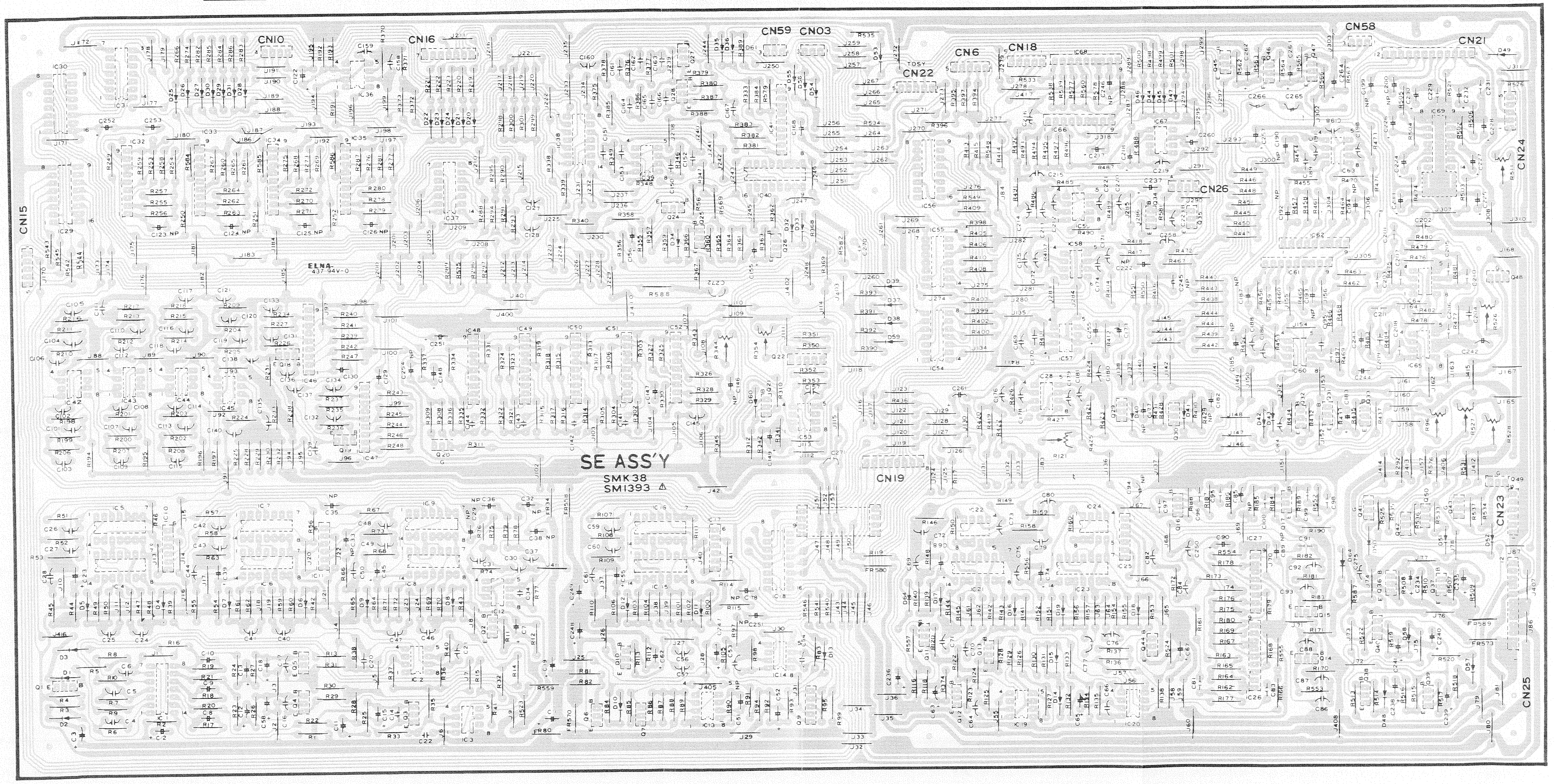
SEMICONDUCTORS:

IC1	TC4069UBP	IC22, 24	MN3006	Other Op-amps	NJM4558DD
IC4,6,8,15,21,23	MSM4011RS	IC26,27,32–35,41,		Q6,21,32,35,37,38,40	2SA929(F)
IC5, 7, 9	MN3004	46–52,61,62,66,68	BA6110	Q7,20,29,30,41–43	2SK163(M,N)
IC10, 11, 17, 25	VC1032-11	IC31,37,38,54,55	TC4066BP	Q8	2SC1583G
IC16	MN3007	IC40, 56	TC4053BP	Q22	2SA798G
IC18, 29, 30	TC4094BP	IC69	LA4170	Other Transistors	2SC1570NP(F)
				D1–58	1S1555

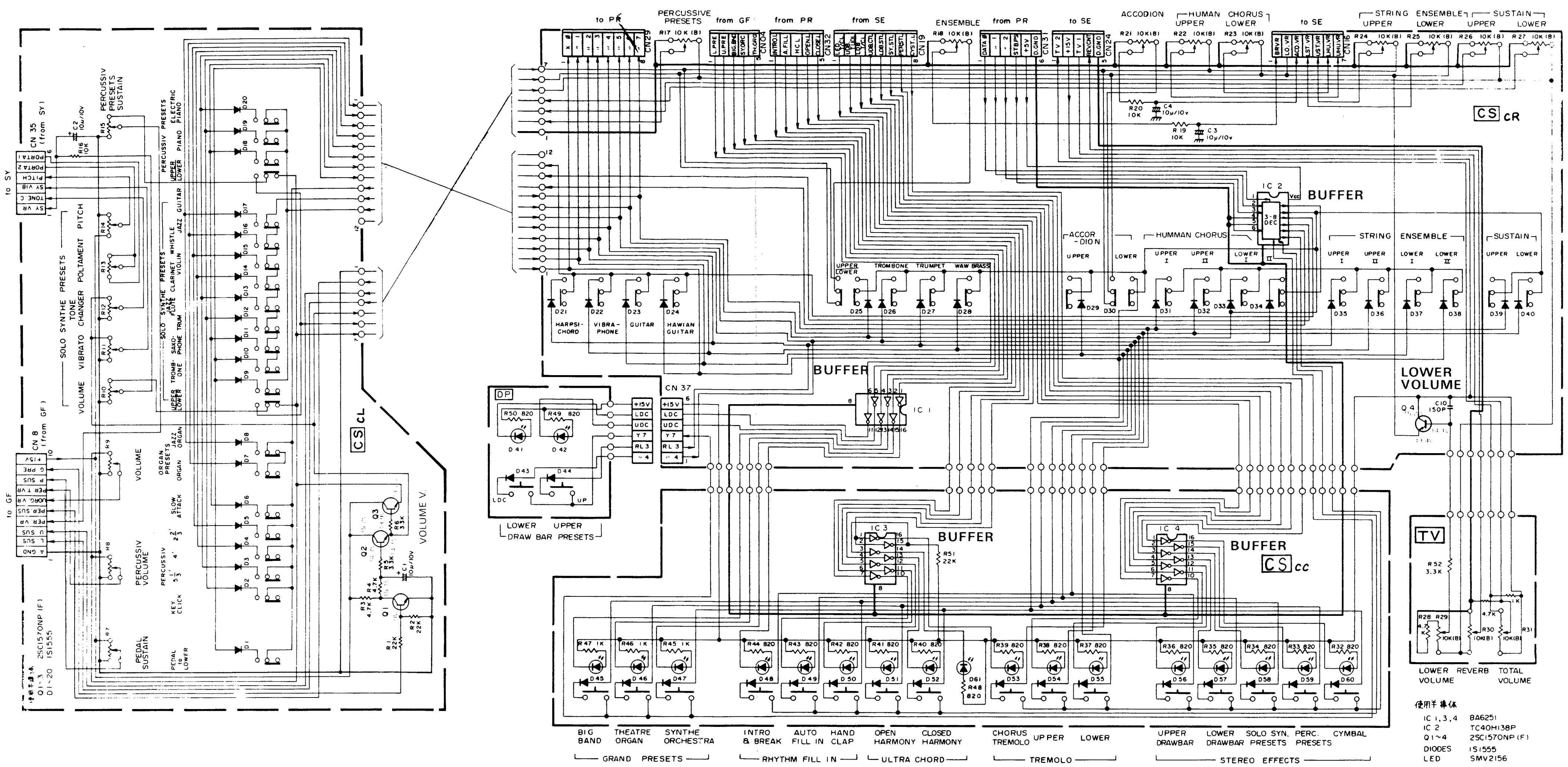

+10V
-10V
10Vp-p
TREMOLO OSC
DC AMP
3 PHASE OSC
CLOCK 1
CLOCK 2
CLOCK 3
MIX
FILTER
IC 10
IC 11
IC 9
BBD 1
BBD 2
BBD 3
2 ch MIX
IC 18
SHIFT & STORE
SPEED CONT.
STEREO OSC
STEREO CLOCK
STEREO BBD
IC 16
IC 17
TREMOLO CLOCK
IC 22
IC 24
IC 25
VCA & FILTER
LPF
HPF
GATE CONT.
OUT PUT GATE
SE
MIX 1
MIX 2
BBD GATE CONT.
BRASS VCF
VCF CONT.
VCA
BRASS ENV
BRASS AMP
ENS IN AMP
HUMAN CHORUS
IC 29
IC 30
UPPER
LOWER
FILTER
VCA
GATE
IC 31
IC 37
IC 38
IC 40
U/L GATE
ACCORDION FILTER & VCA
LOWER VCA
GATE
MIX
TREMOLO
NORMAL
STEREO
IC 54
IC 55
IC 56
GRAND PRESET CONT.
REVERB AMP & FILTER
REVERB MIX
Lch MIX
Rch MIX
VCA
HPF
LPF
IC 69
HEAD PHONE AMP
CN 19
to CS
CN 23
to MA
CN 25
from MA
CN 24
to CS
CN 15
from PR
CN 10
from GF
CN 16
from CR
CN 59
from GF
CN 03
from GF
CN 06
from GF
CN 18
from PR
CN 22
to SY
CN 58
from GF
CN 26
REVERB
CN 21
to AX

SE CIRCUIT BOARD

Silk side


SE ASS'Y
SMK38
SM1393 ⚠
ELNA
437-94V-0
CN10
CN16
CN59
CN03
CN22
CN6
CN18
CN58
CN21
CN24
CN15
CN26
CN19
CN23
CN25

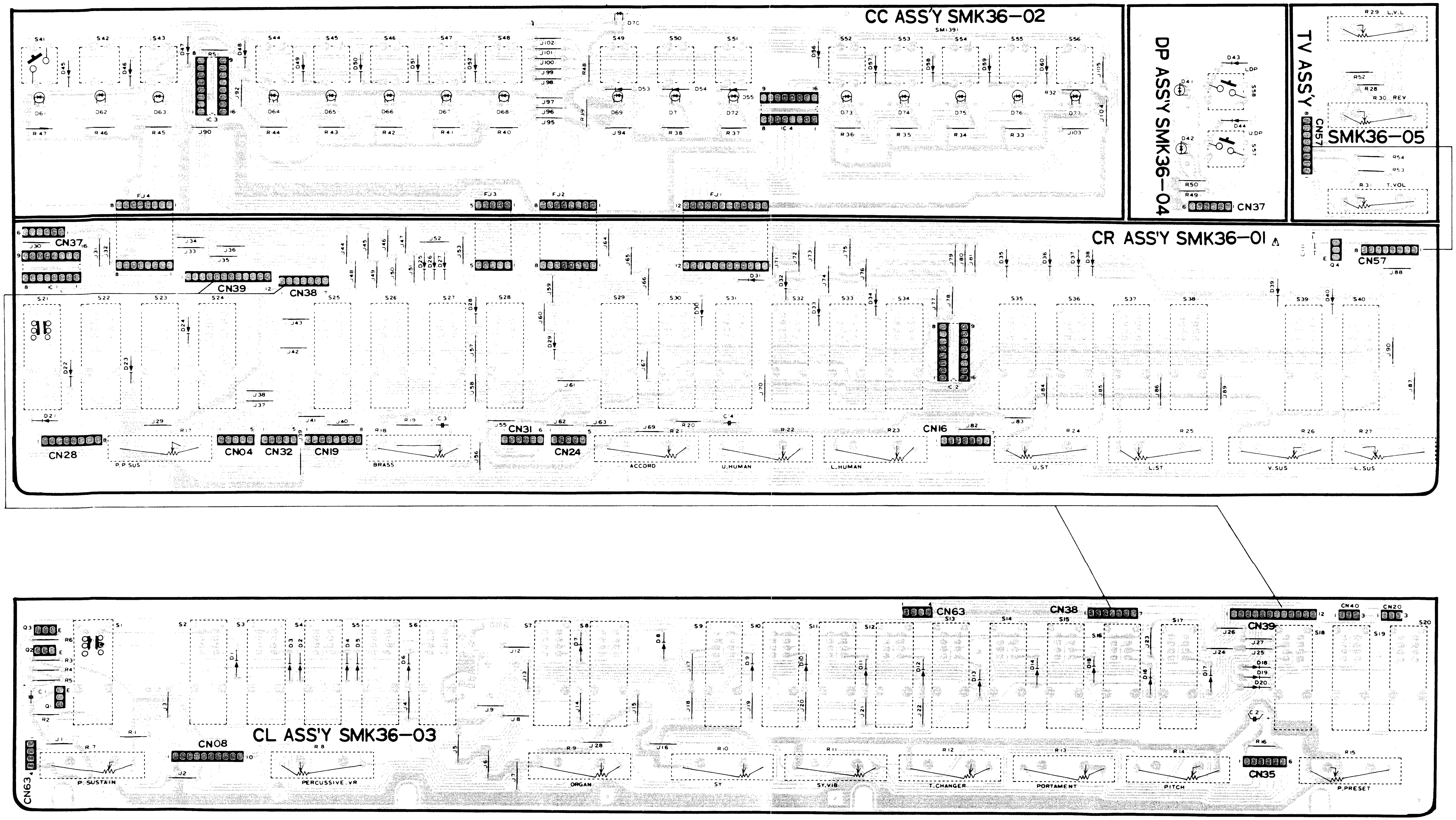
CS BOARD (CONTROL SWITCH) SCHEMATIC DIAGRAM


to PR
PERCUSSIVE PRESETS
from GF
from PR
from SE
ENSEMBLE
from PR
to SE
ACCODION
HUMAN CHORUS
UPPER
LOWER
to SE
STRING ENSEMBLE
SUSTAIN
UPPER
LOWER
CS CR
IC 2
BUFFER
ACCOR-DION
HUMMAN CHORUS
STRING ENSEMBLE
SUSTAIN
HARPSI-CHORD
VIBRA-PHONE
GUITAR
HAWIAN GUITAR
TROMBONE
TRUMPET
WAW BRASS
BUFFER
IC 1
CN 37
DP
LOWER UPPER
DRAW BAR PRESETS
LOWER VOLUME
IC 3
BUFFER
IC 4
BUFFER
CS CC
TV
CS CL
to SY
CN 35 (from SY)
to GF
CN 8 (from GF)
VOLUME
VIBRATO
SOLO SYNTHE PRESETS
TONE CHANGER
POLTAMENT
PITCH
PERCUSSIV PRESETS SUSTAIN
PERCUSSIV VOLUME
PEDAL SUSTAIN
VOLUME V
ORGAN PRESETS
BIG BAND
THEATRE ORGAN
SYNTHE ORCHESTRA
GRAND PRESETS
INTRO & BREAK
AUTO FILL IN
HAND CLAP
RHYTHM FILL IN
OPEN HARMONY
CLOSED HARMONY
ULTRA CHORD
CHORUS TREMOLO
UPPER
LOWER
TREMOLO
UPPER DRAWBAR
LOWER DRAWBAR
SOLO SYN. PRESETS
PERC. PRESETS
CYMBAL
STEREO EFFECTS
LOWER VOLUME
REVERB
TOTAL VOLUME
使用半導体
IC 1,3,4 BA6251
IC 2 TC40H138P
Q1~4 2SC1570NP(F)
DIODES 1S1555
LED SMV2156

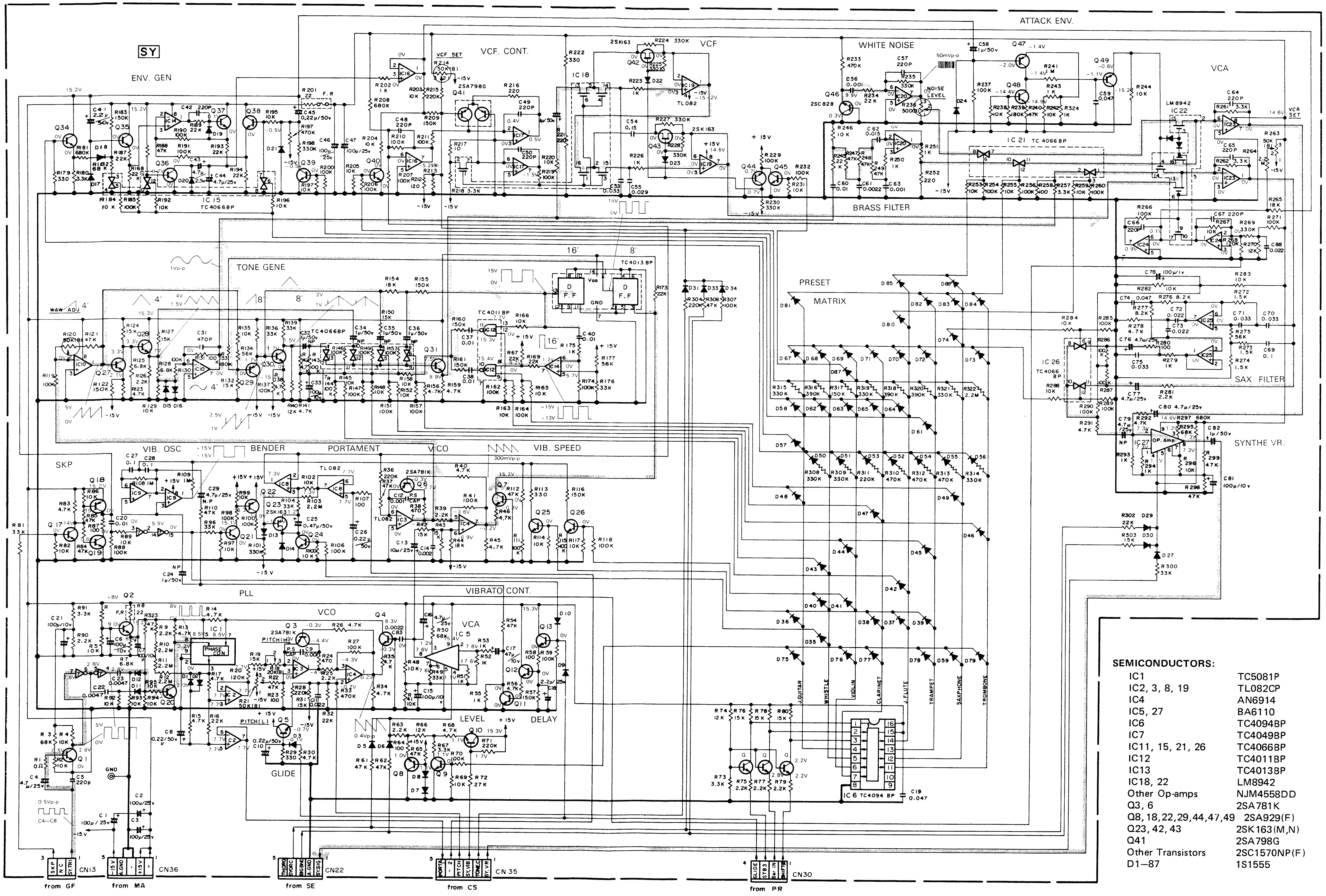
SHIFT & LATCH INPUT/OUTPUT

	PIN No. \ IC No.		SE IC30	SE IC29	GC IC4	SY IC6	GF IC4	SE IC18	PR IC12	GF IC7	GF IC8	GF IC9	GF IC10	GF IC11	PR IC13	PR IC14	RS IC55	RS IC53
INPUT	1	STB	STB 0	STB 1	STB 2	STB 3	STB 4	STB 5	STB 6	STB 7	STB 8	STB 9	STB A(10)	STB B(11)	STB C(12)	STB D(13)	STB E(14)	STB F(15)
	2	SER. IN																
	3	SHIFT ϕ																
OUTPUT	4	Q1	L. STRINGENS II	L. ACCRDION	H. GUITAR	J. GUITAR	J. ORGAN	STEREO HH	ULTRA C. CLOSE	SYN. ORCHESTRA	UPPER KP 1	UPPER(L/R) 1	ACCOMP GUI. KP	LOWER KP1	BD	MUTING	7 SEG LED 0	7 SEG LED 10^0
	5	Q2	〃 I	U. 〃	GUITAR	WHISTE	FULL ORGAN	〃 PERC	〃 OPEN	THEATRE ORGAN	〃 2	〃 2	〃 SHORT	〃 2	CLOSE HH	SYN. GLIDE	〃 1	〃 10^1
	6	Q3	U. STRINGENS II	WAW BRASS	VIBRAHONE	VIOLIN	PERC 2 ⅔'	〃 SYNTHE	HAND CLAP	BIG BAND	〃 3	〃 3	BASS KP	〃 3	HAND CLAP	ROCK BD	〃 2	〃 10^2
	7	Q4	〃	TRUMPET	HARPSI CHORD	CLARINET	〃 4'	〃 LOWER	AUTO FILL IN	UPPER DB.	〃 4	〃 4	PIANO KP 1	〃 4	ACCSEN	TAM/CONGA	〃 3	SYNCRO LED
	14	Q5	L. HUMAN CHO II	TROMBONE	E. PIANO	J. FLUTE	〃 5 ⅓'	〃 UPPER	INTRO&BRAEK	LOWER DB.	〃 5	〃 5	〃 KP 2	〃 5	LC	OPEN HH	〃 4	BEAT CON 4
	13	Q6	〃 I	UPPER TO LOWER	PIANO	TRUMPET	KEY CLICK	TREMOLO LOWER	—	GRAND PRESETS	〃 6	〃 6	〃 KP 3	〃 6	SC	CL	〃 5	〃 3
	12	Q7	U. HUMAN CHO II	LOWER STEREO	PERC. KP	SAXOPHONE	LOWER SUS.	〃 UPPER	REPLAY	NOISE SUPP.	〃 7	〃 7	BRASS KP	〃 7	SY	RS	〃 6	〃 2
	11	Q8	〃 I	UPPER 〃	〃DECAY	TROMBONE	UPPER SUS.	TRE./CHORUS	RECORD	STEREO F/S	UPPER TOTAL KP	GLIDE	SYNTH KP	LOWER TOTAL KP	SD	CB	—	〃 1
	8	VSS	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V	0 V
	9	QS																
	10	Q'S																
	15	ENABLE																
	16	VDD	+ 5 V	+ 5 V	+ 5 V	+15V	+ 5 V	+ 5 V	+ 5 V	+ 5 V	+3.6V	+ 5 V	+ 5 V	+3.6V	+15V	+15V	+ 5 V	+ 5 V

CS CIRCUIT BOARD


CC ASS'Y SMK36-02
DP ASS'Y SMK36-04
TV ASS'Y SMK36-05
CR ASS'Y SMK36-01
CL ASS'Y SMK36-03
CN37
CN57
CN39
CN38
CN28
CN04
CN32
CN19
CN31
CN24
CN16
CN63
CN08
CN35
CN40
CN20
P.P SUS
BRASS
ACCORD
U.HUMAN
L.HUMAN
U.ST
L.ST
V.SUS
L.SUS
P. SUSTAIN
PERCUSSIVE.VR
ORGAN
SY
SY.VIB
T.CHANGER
PORTAMENT
PITCH
P.PRESET
R29 L.V.L
R30 REV
R31 T.VOL
UDP
LDP

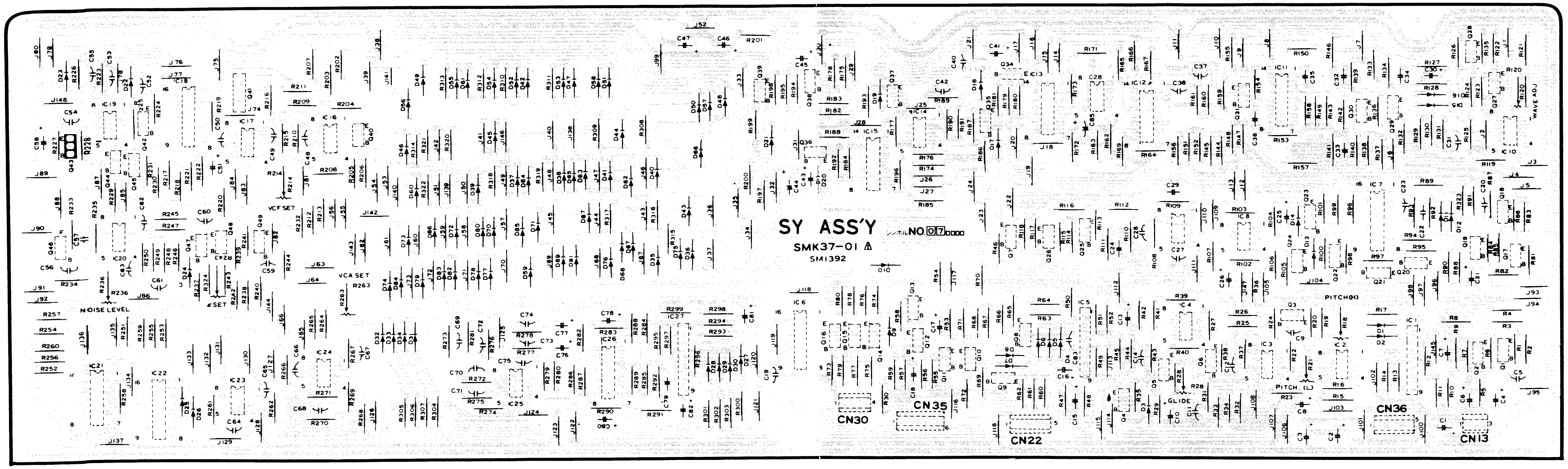
SY BOARD (SYNTHESIZER) SCHEMATIC DIAGRAM


SY
ENV. GEN
VCF. CONT.
VCF
WHITE NOISE
ATTACK ENV.
VCA
NOISE LEVEL
BRASS FILTER
TONE GENE
16'
8'
4'
WAW-ADJ
PRESET
MATRIX
SAX FILTER
SYNTHE VR.
SKP
VIB. OSC
BENDER
PORTAMENT
VCO
VIB. SPEED
PLL
VCO
VCA
VIBRATO CONT.
LEVEL
DELAY
GLIDE
GND
J.GUITAR
WHISTLE
VIOLIN
CLARINET
J.FLUTE
TRUMPET
SAXPHONE
TROMBONE
IC 6 TC4094 BP
CN13
from GF
CN36
from MA
CN22
from SE
CN 35
from CS
CN30
from PR

SEMICONDUCTORS:

IC1	TC5081P
IC2, 3, 8, 19	TL082CP
IC4	AN6914
IC5, 27	BA6110
IC6	TC4094BP
IC7	TC4049BP
IC11, 15, 21, 26	TC4066BP
IC12	TC4011BP
IC13	TC4013BP
IC18, 22	LM8942
Other Op-amps	NJM4558DD
Q3, 6	2SA781K
Q8, 18, 22, 29, 44, 47, 49	2SA929(F)
Q23, 42, 43	2SK163(M,N)
Q41	2SA798G
Other Transistors	2SC1570NP(F)
D1–87	1S1555

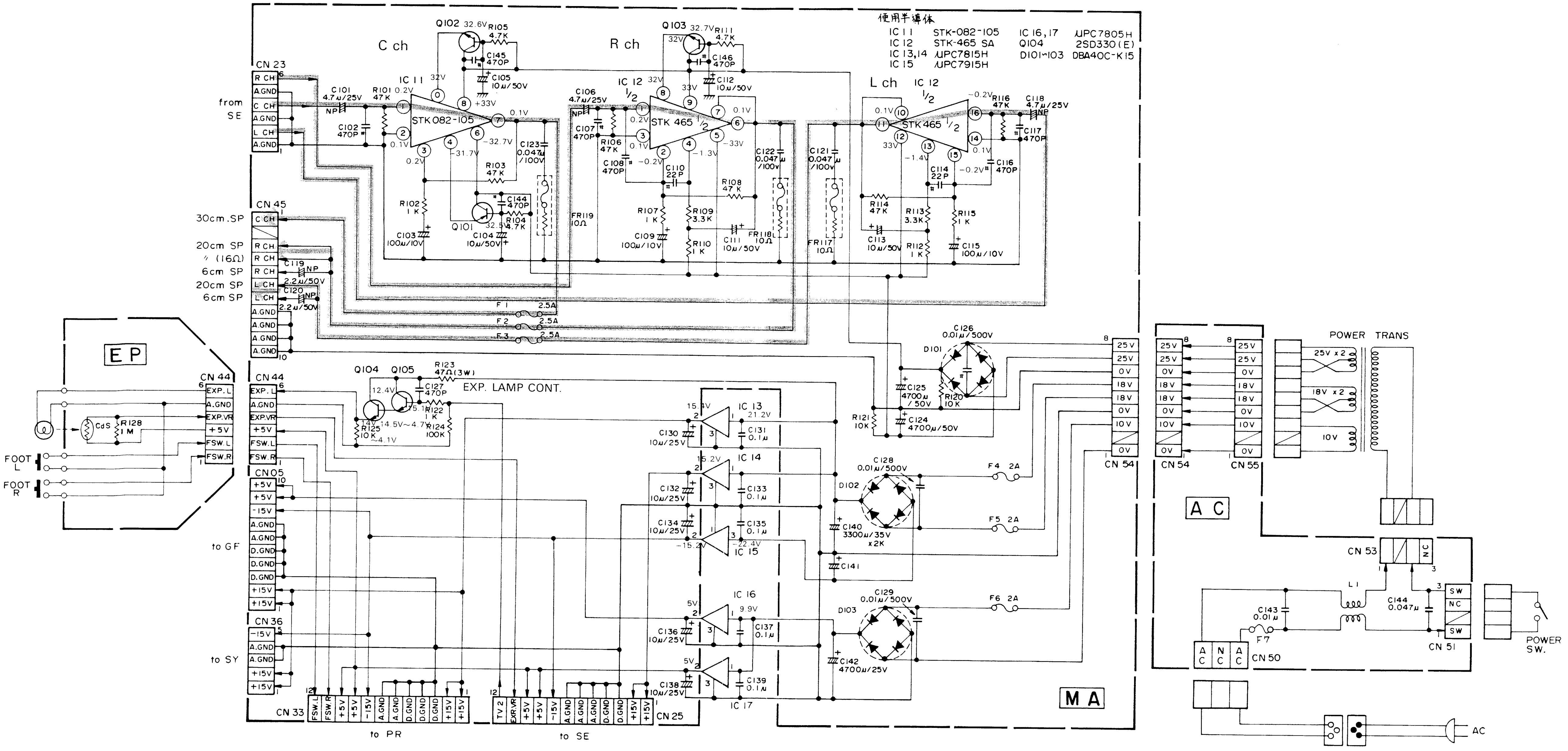
SY CIRCUIT BOARD


SY ASS'Y
NO.07
SMK37-01 A
SM1392
NOISE LEVEL
VCF SET
VCA SET
PITCH(H)
PITCH (L)
GLIDE
WAVE ADJ
CN30
CN35
CN22
CN36
CN13

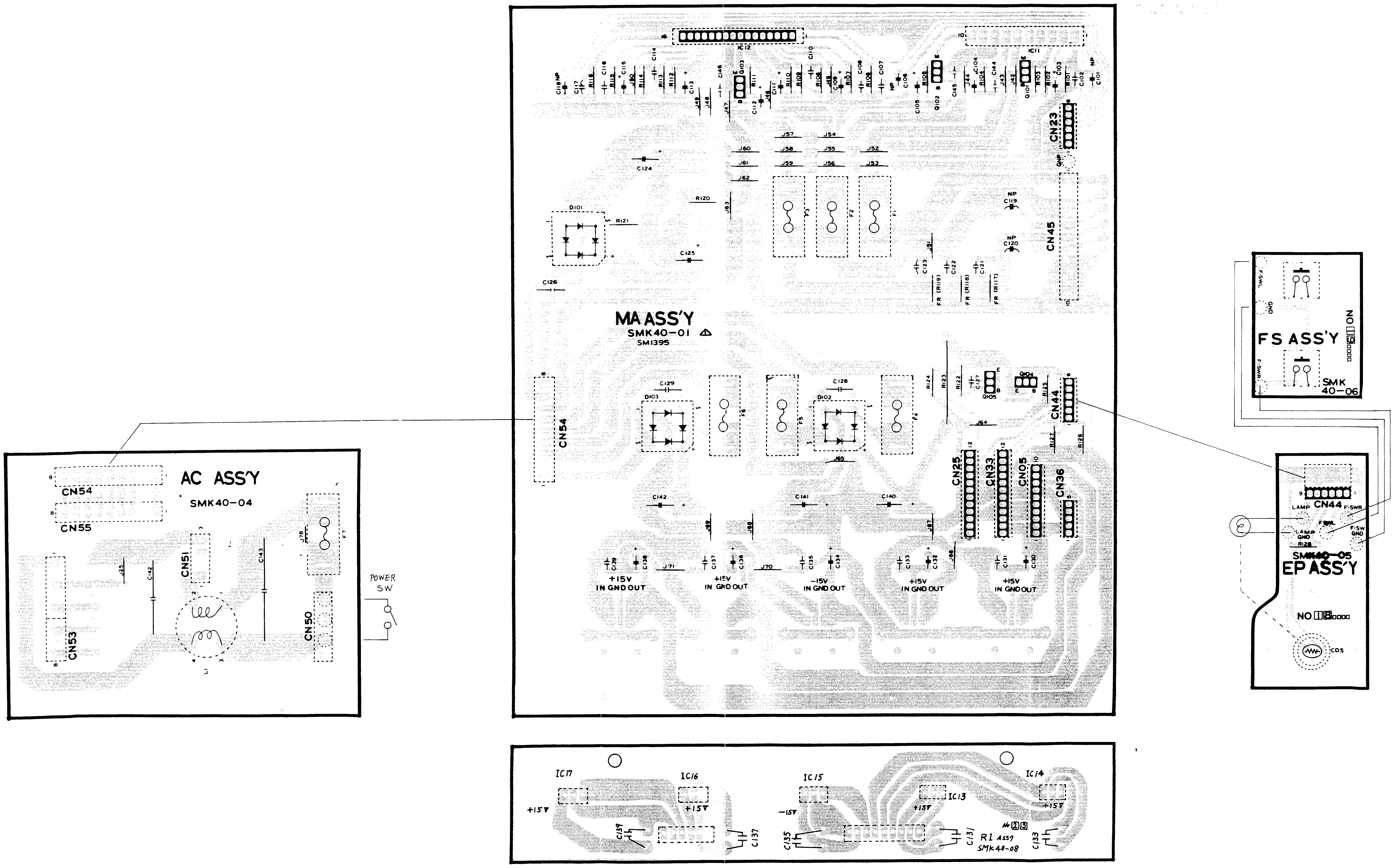
MA BOARD (MAIN AMP) SCHEMATIC DIAGRAM

SEMICONDUCTORS:

IC11	STK-082-105	IC16, 17	μPC7805H
IC12	STK-465SA	Q104	2SD330(E)
IC13, 14	μPC7815H	D101–103	DBA40C-K15
IC15	μPC7915H		

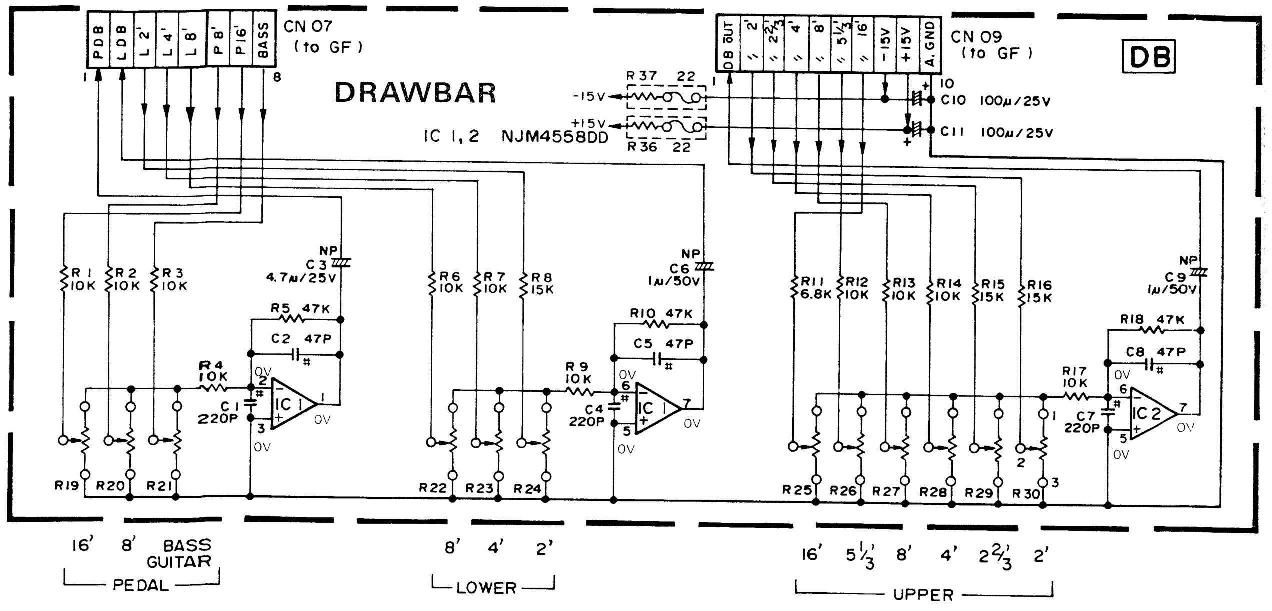

使用半導体
IC11 STK-082-105 IC16,17 μPC7805H
IC12 STK-465 SA Q104 2SD330(E)
IC13,14 μPC7815H D101~103 DBA40C-K15
IC15 μPC7915H
C ch
R ch
L ch
IC11 STK082-105
IC12 1/2 STK465 1/2
IC12 1/2 STK465 1/2
Q101
Q102
Q103
Q104
Q105
CN23
R CH
A.GND
C CH
A.GND
L CH
A.GND
from SE
CN45
C CH
R CH
R CH
R CH
L CH
L CH
A.GND
30cm SP
20cm SP
(16Ω)
6cm SP
20cm SP
6cm SP
F1 2.5A
F2 2.5A
F3 2.5A
FR117 10Ω
FR118 10Ω
FR119 10Ω
EP
CN44
EXP.L
A.GND
EXP.VR
+5V
FSW.L
FSW.R
CdS
R128 1M
FOOT L
FOOT R
EXP. LAMP CONT.
R123 47Ω(3W)
CN05
+5V
+5V
-15V
A.GND
A.GND
D.GND
D.GND
D.GND
+15V
+15V
to GF
CN36
-15V
A.GND
A.GND
+15V
+15V
to SY
CN33
to PR
CN25
to SE
IC13
IC14
IC15
IC16
IC17
D101
D102
D103
C125 4700μ/50V
C124 4700μ/50V
C140 3300μ/35V x2K
C142 4700μ/25V
C126 0.01μ/500V
C128 0.01μ/500V
C129 0.01μ/500V
F4 2A
F5 2A
F6 2A
CN54
25V
25V
0V
18V
18V
0V
10V
0V
CN55
POWER TRANS
25V x2
18V x2
10V
AC
CN53
L1
C143 0.01μ
C144 0.047μ
F7
CN50
CN51
SW
NC
POWER SW.
AC
MA

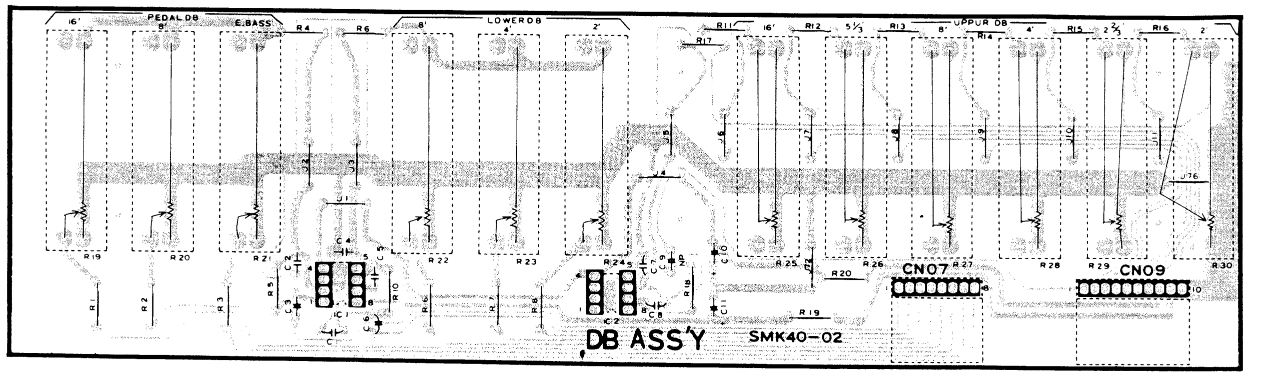
MA, AC, EP CIRCUIT BOARD


MA ASS'Y
SMK40-01
SM1395
AC ASS'Y
SMK40-04
CN54
CN55
CN51
CN53
CN50
POWER SW
FS ASS'Y
SMK 40-06
EP ASS'Y
SMK40-05
CN44
LAMP
LAMP GND
F-SWR
F-SWL
F-SW GND
CDS
CN23
CN45
CN25
CN33
CN05
CN36
IC11
IC12
D101
D102
D103
+15V IN GND OUT
-15V IN GND OUT
IC17
IC16
IC15
IC14
IC13
+15V
-15V
R1 ASS'Y
SMK40-08

OTHER P.W. BOARDS

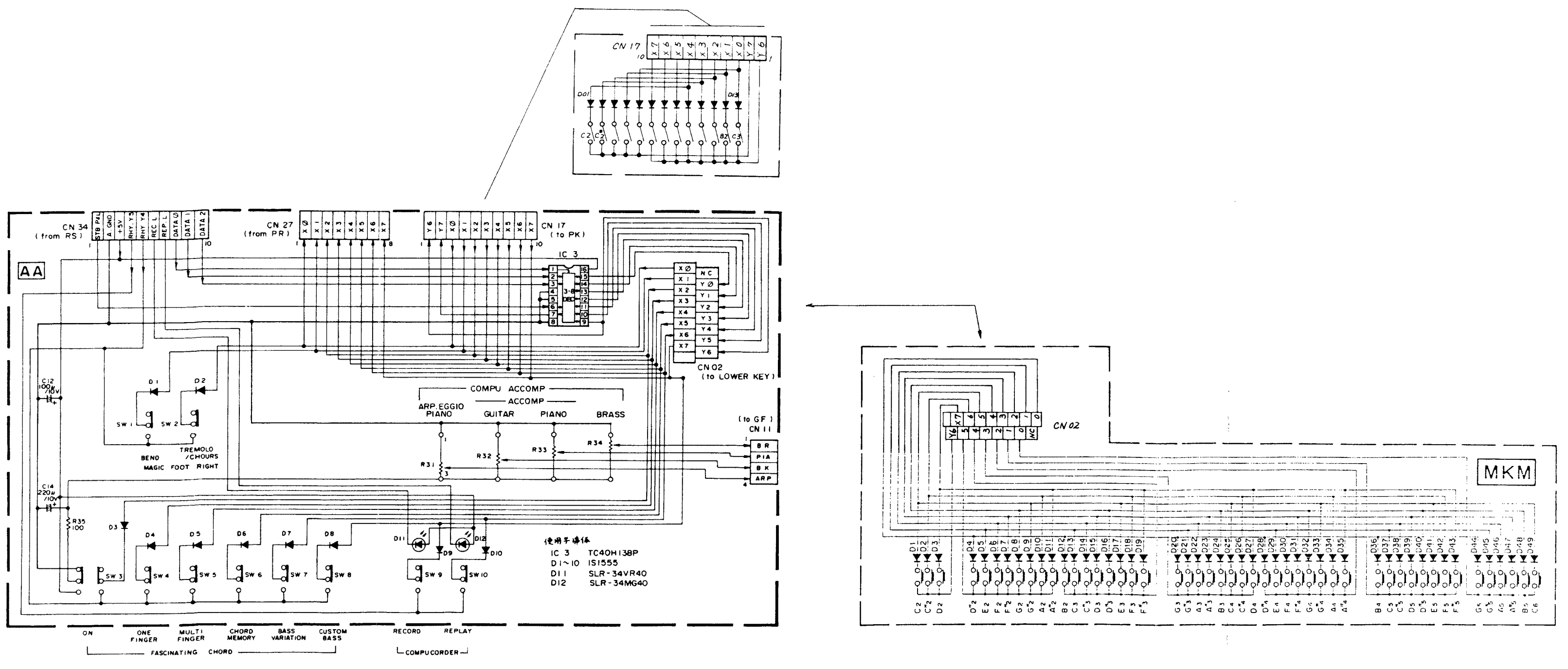
• DB BOARD

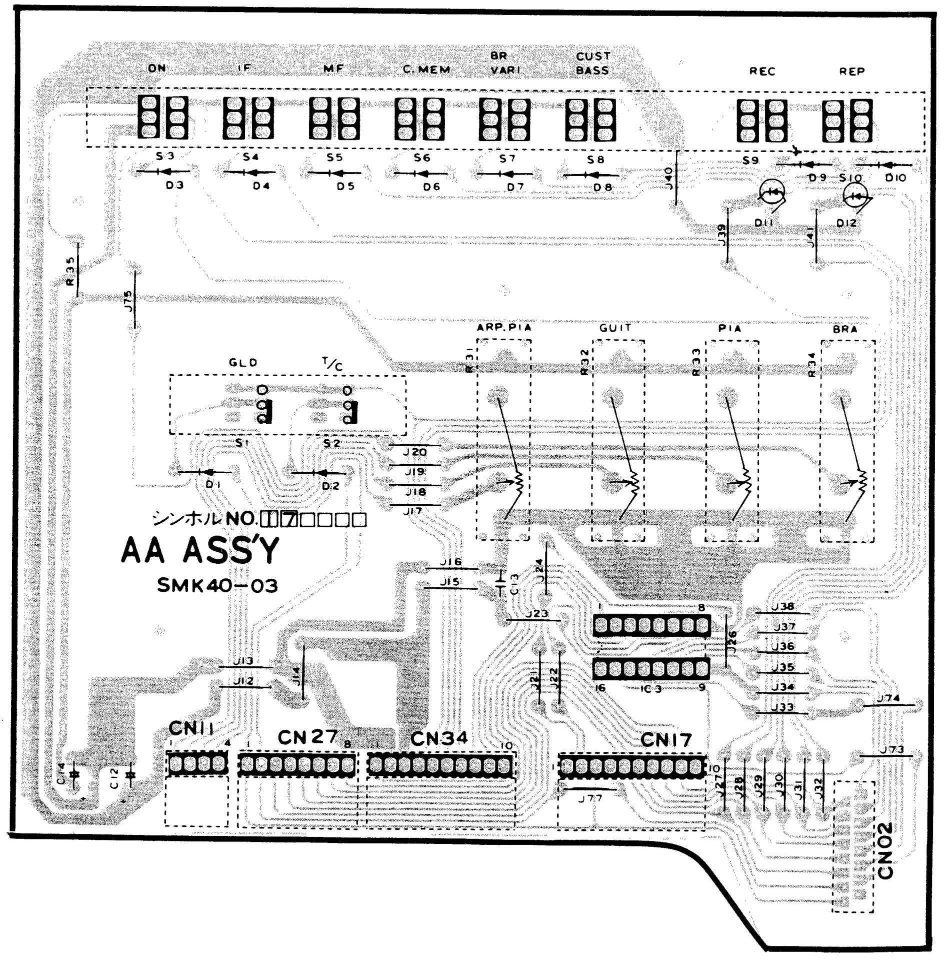

PDB
LDB
L 2'
L 4'
L 8'
P 8'
P16'
BASS
CN 07 (to GF)
DRAWBAR
R37 22
-15V
+15V
R36 22
IC 1,2 NJM4558DD
DB OUT
2'
2 2/3'
4'
8'
5 1/3'
16'
-15V
+15V
A.GND
CN 09 (to GF)
C10 100μ/25V
C11 100μ/25V
DB
R1 10K
R2 10K
R3 10K
NP C3 4.7μ/25V
R5 47K
C2 47P
R4 10K
C1 220P
IC 1
R6 10K
R7 10K
R8 15K
NP C6 1μ/50V
R10 47K
C5 47P
R9 10K
C4 220P
R11 6.8K
R12 10K
R13 10K
R14 10K
R15 15K
R16 15K
NP C9 1μ/50V
R18 47K
C8 47P
R17 10K
C7 220P
IC 2
0V
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
16' 8' BASS GUITAR
PEDAL
8' 4' 2'
LOWER
16' 5 1/3' 8' 4' 2 2/3' 2'
UPPER


PEDAL DB
E.BASS
LOWER DB
UPPUR DB
CN07
CN09
DB ASS'Y SMK40-02

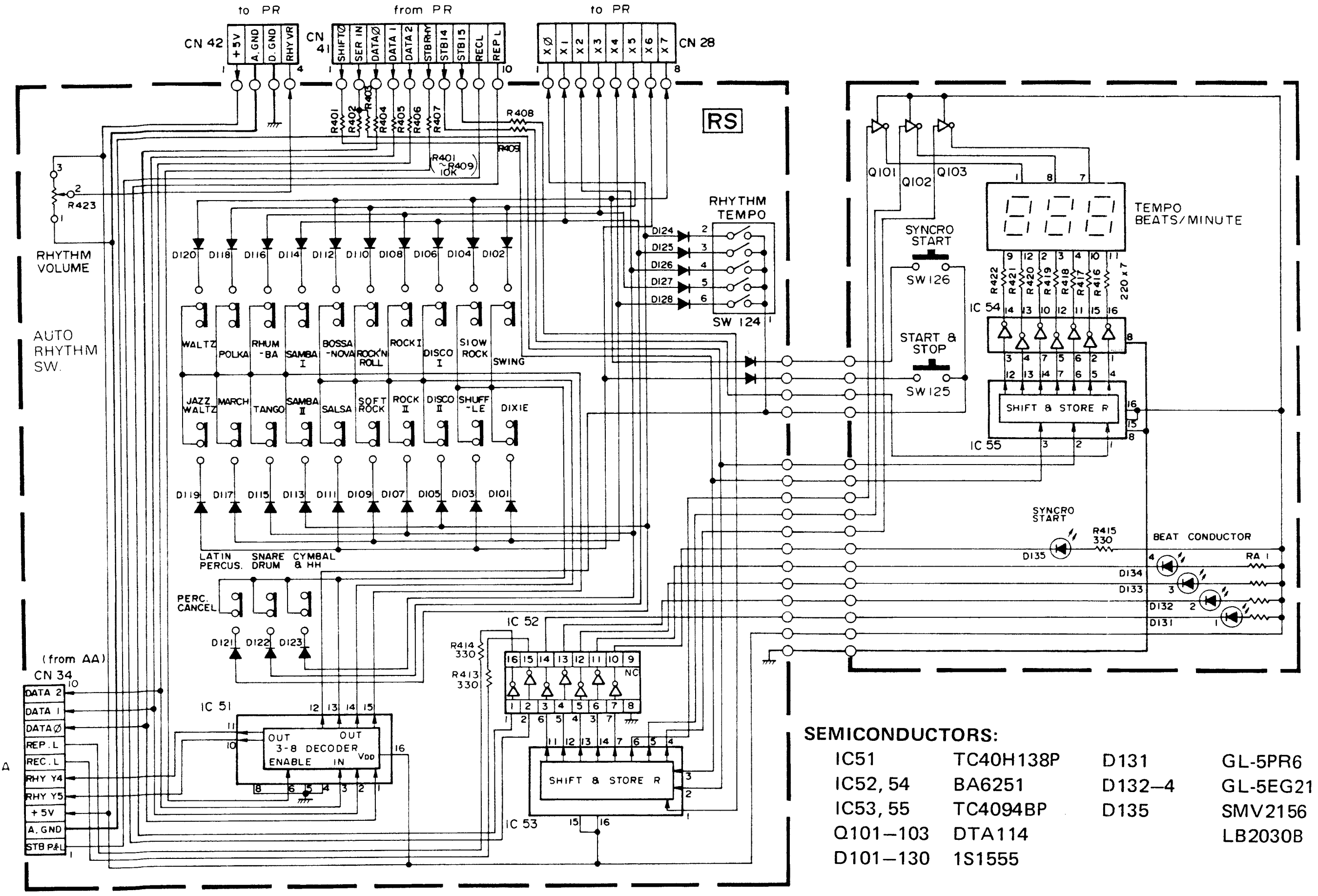
(Soldered side)

• AA BOARD


AA
CN 34 (from RS)
CN 27 (from PR)
CN 17 (to PK)
IC 3
CN 02 (to LOWER KEY)
(to GF) CN 11
COMPU ACCOMP
ACCOMP
ARP.EGGIO PIANO
GUITAR
PIANO
BRASS
R31
R32
R33
R34
BEND
TREMOLO /CHOURS
MAGIC FOOT RIGHT
IC 3 TC40H138P
D1~10 1S1555
D11 SLR-34VR40
D12 SLR-34MG40
ON
ONE FINGER
MULTI FINGER
CHORD MEMORY
BASS VARIATION
CUSTOM BASS
RECORD
REPLAY
FASCINATING CHORD
COMPUCORDER
MKM
CN 02

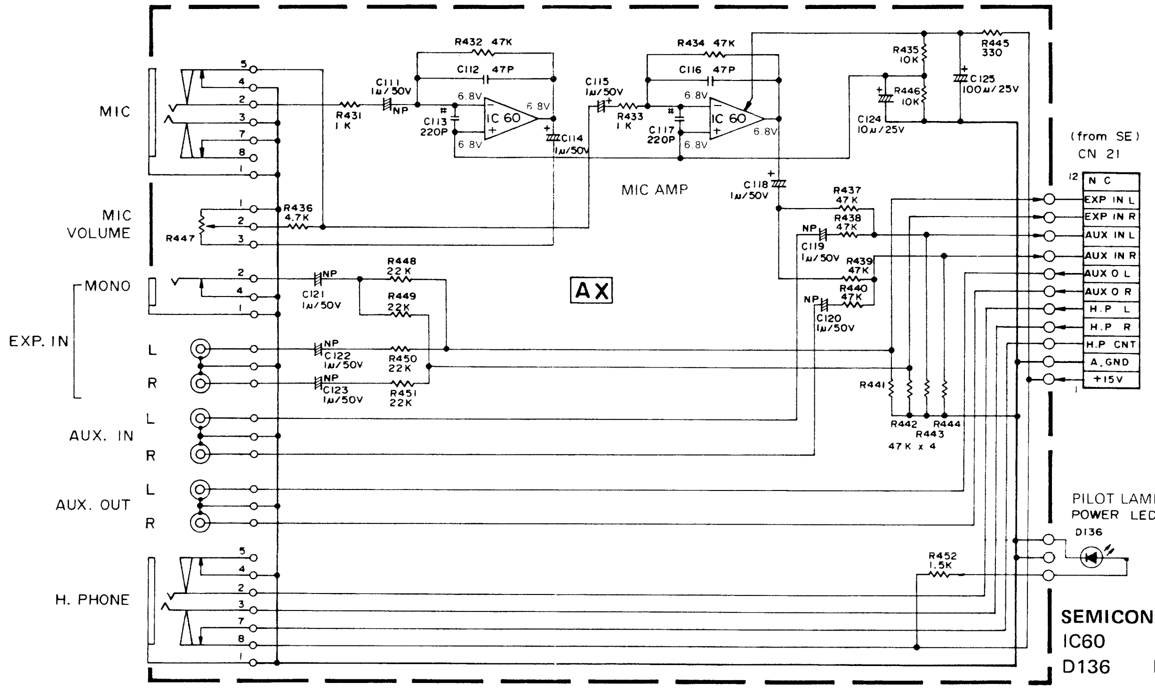

ON
1F
MF
C.MEM
BR VARI
CUST BASS
REC
REP
GLD
T/C
ARP.PIA
GUIT
PIA
BRA
シンボルNO.
AA ASS'Y
SMK40-03
CN11
CN27
CN34
CN17
CN02
IC 3

● RS BOARD


to PR
from PR
to PR
CN 42
CN 41
CN 28
+5V
A.GND
D.GND
RHY VR
SHIFT
SER IN
DATA
DATA 1
DATA 2
STB RHY
STB 15
STB 14
RECL
REP L
RS
RHYTHM VOLUME
R423
AUTO RHYTHM SW.
WALTZ
POLKA
RHUM-BA
SAMBA I
BOSSA-NOVA
ROCK'N ROLL
ROCK I
DISCO I
SLOW ROCK
SWING
JAZZ WALTZ
MARCH
TANGO
SAMBA II
SALSA
SOFT ROCK
ROCK II
DISCO II
SHUFF-LE
DIXIE
LATIN PERCUS.
SNARE DRUM
CYMBAL & HH
PERC. CANCEL
RHYTHM TEMPO
SW 124
(from AA)
CN 34
DATA 2
DATA 1
DATA
REP. L
REC. L
RHY Y4
RHY Y5
+5V
A. GND
STB P&L
to AA
IC 51
3-8 DECODER
IC 52
IC 53
SHIFT & STORE R
R414 330
R413 330
Q101
Q102
Q103
SYNCRO START
SW126
START & STOP
SW125
IC 54
IC 55
SHIFT & STORE R
TEMPO BEATS/MINUTE
220 x 7
SYNCRO START
R415 330
BEAT CONDUCTOR
D135
D134
D133
D132
D131
RA 1

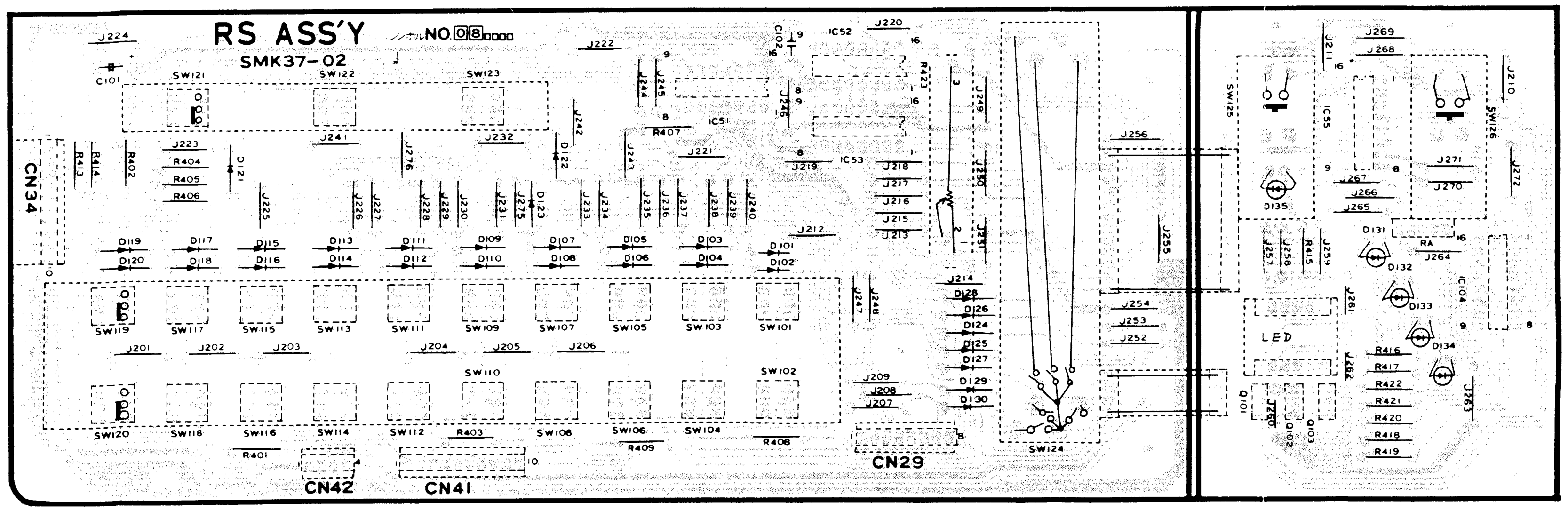
SEMICONDUCTORS:

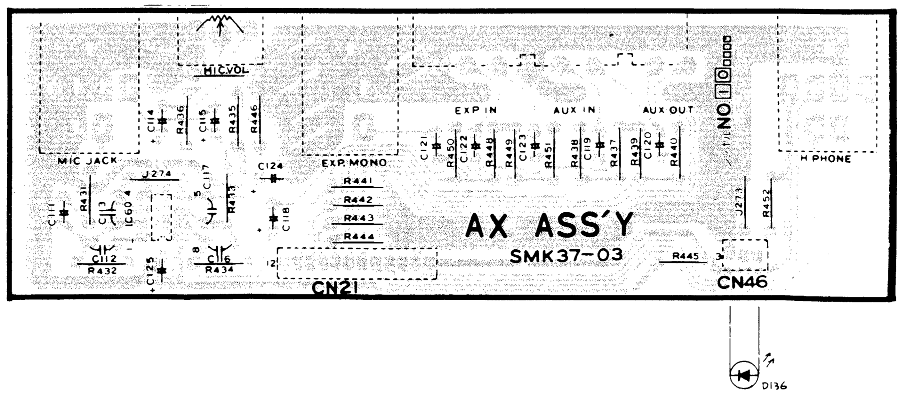
IC51	TC40H138P	D131	GL-5PR6
IC52, 54	BA6251	D132–4	GL-5EG21
IC53, 55	TC4094BP	D135	SMV2156
Q101–103	DTA114		LB2030B
D101–130	1S1555		


MIC
MIC VOLUME
R447
MONO
EXP. IN
L
R
AUX. IN
AUX. OUT
H. PHONE
R432 47K
C112 47P
C111 1μ/50V
R431 1K
C113 220P
IC 60
6.8V
C114 1μ/50V
C115 1μ/50V
R433 1K
R434 47K
C116 47P
C117 220P
MIC AMP
R435 10K
R445 330
R446 10K
C125 100μ/25V
C124 10μ/25V
C118 1μ/50V
R436 4.7K
R437 47K
R438 47K
C119 1μ/50V
R439 47K
R440 47K
C120 1μ/50V
C121 1μ/50V
R448 22K
R449 22K
C122 1μ/50V
R450 22K
C123 1μ/50V
R451 22K
AX
R441
R442
R444
R443
47K x 4
(from SE)
CN 21
N C
EXP IN L
EXP IN R
AUX IN L
AUX IN R
AUX O L
AUX O R
H. P L
H. P R
H.P CNT
A. GND
+15V
PILOT LAMP
POWER LED
D136
R452 1.5K

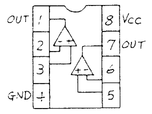
SEMICONDUCTORS:

IC60	NJM4558DD
D136	PR5534S-1

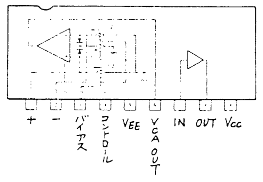

RS ASS'Y
SMK37-02
NO08
CN34
CN42
CN41
CN29
IC51
IC52
IC53
IC55
SW124
SW125
SW126
LED
D135
D131
D132
D133
D134


AX ASS'Y
SMK37-03
NO10
MIC VOL
MIC JACK
EXP IN
AUX IN
AUX OUT
EXP. MONO
H PHONE
CN21
CN46
D136

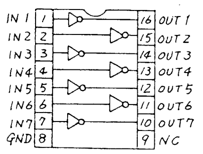
AN6914 Dual Converter


OUT
Vcc
OUT
GND

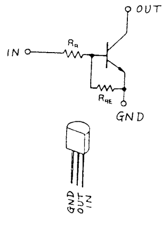
BA6110 Op-amp


+ −
VEE
IN OUT Vcc

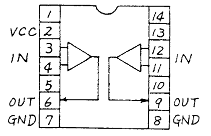
BA6251 Inverter


IN 1
IN 2
IN 3
IN 4
IN 5
IN 6
IN 7
GND
OUT 1
OUT 2
OUT 3
OUT 4
OUT 5
OUT 6
OUT 7
NC

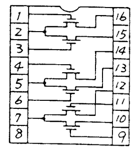
DTA114 Resistance Transistor


OUT
IN
GND
GND
OUT
IN

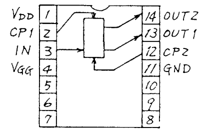
LA4170 2-ch Amp.


VCC
IN
IN
OUT
GND
OUT
GND

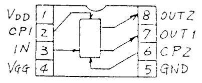
LM8942 MOS Inverter



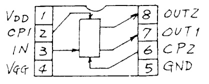
MN3004 512-step BBD


VDD
CP1
IN
VGG
OUT2
OUT1
CP2
GND

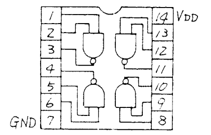
MN3006 128-step BBD


VDD
CP1
IN
VGG
OUT2
OUT1
CP2
GND

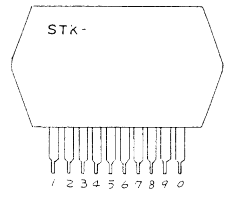
MN3007 1024-step BBD


VDD
CP1
IN
VGG
OUT2
OUT1
CP2
GND

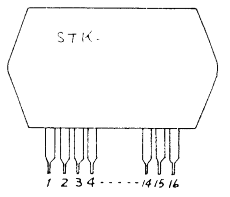
MSM4011RS NAND Gate
TC4011BP



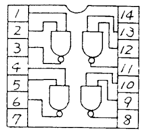
STK-082 Power Amp.


STK-
1 2 3 4 5 6 7 8 9 0

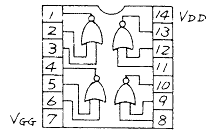
STK-465 2-ch Power Amp.


STK-
1 2 3 4 ····· 14 15 16

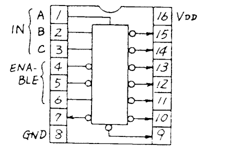
TC40H000P NAND



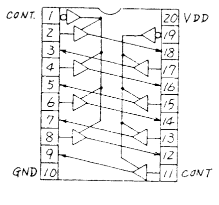
TC40H002P NOR Gate



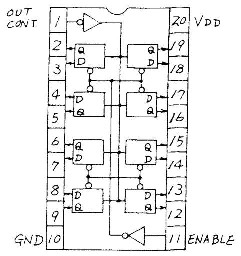
TC40H138P 3-8 Decoder


IN
A
B
C
ENA-BLE
GND
VDD

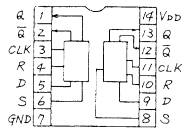
TC40H244P 3-state Buffer


CONT.
VDD
GND
CONT

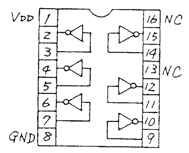
TC40H373P 3-state D Latch


OUT CONT
VDD
GND
ENABLE

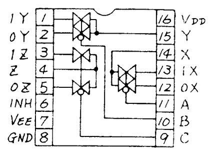
TC4013BP D Flip-flop


Q
Q̄
CLK
R
D
S
GND
VDD
Q
Q̄
CLK
R
D
S

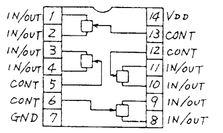
TC4049BP Inversion Buffer


VDD
GND
NC
NC

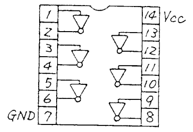
TC4053BP
Triple 2-ch Switch


1Y
0Y
1Z
Z
0Z
INH
VEE
GND
VDD
Y
X
1X
0X
A
B
C

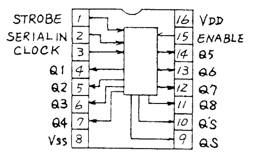
TC4066BP 2-way Switch


IN/OUT
IN/OUT
IN/OUT
IN/OUT
CONT
CONT
GND
VDD
CONT
CONT
IN/OUT
IN/OUT
IN/OUT
IN/OUT

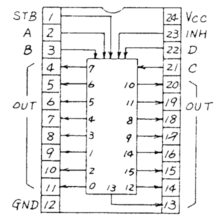
TC4069UBP Inverter



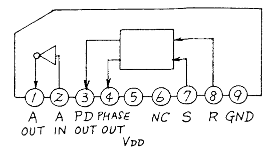
TC4094BP Shift & Latch


STROBE
SERIAL IN
CLOCK
Q1
Q2
Q3
Q4
VSS
VDD
ENABLE
Q5
Q6
Q7
Q8
QS
QS

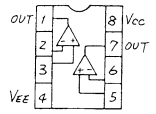
TC4514BP 4-16 Decoder


STB
A
B
OUT
GND
Vcc
INH
D
C
OUT

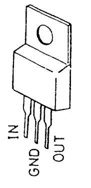
TC5081AP Phase Converter


A OUT
A IN
PD OUT
PHASE OUT
NC
S
R
GND
VDD

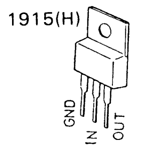
TL082CP **High performance type**
NJM4558DD **Low noise type**


OUT
VEE
Vcc
OUT

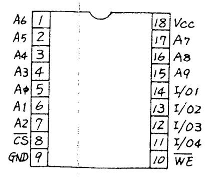
UPC7805
UPC7815 **Regulator**



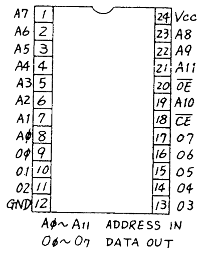
UPC7915H
−15 V Regulator


1915(H)
GND
IN
OUT

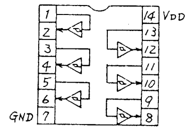
UPD444C
4096-bit RAM


A6
A5
A4
A3
A0
A1
A2
CS
GND
Vcc
A7
A8
A9
I/O1
I/O2
I/O3
I/O4
WE

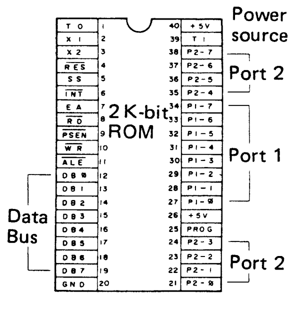
UPD2732C-P003
32 K-bit One Time PROM


A7
A6
A5
A4
A3
A2
A1
A0
O0
O1
O2
GND
Vcc
A8
A9
A11
OE
A10
CE
O7
O6
O5
O4
O3
A0~A11 ADDRESS IN
O0~O7 DATA OUT

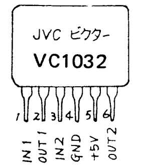
UPD4584BC
Schmidt Trigger



UPD8049C CPU


Power source
Port 2
2 K-bit ROM
Port 1
Data Bus
Port 2

VC1032 Low-Pass Filter


JVC ビクター
VC1032
IN1
OUT1
IN2
GND
+5V
OUT2